



Biogerontology
Research Foundation
Prevent. Restore. Preserve.

Longevity Industry in UK

LANDSCAPE OVERVIEW



DEEP
KNOWLEDGE
ANALYTICS

SCIENCE, TECHNOLOGIES, COMPANIES, INVESTORS, TRENDS



Longevity Industry in UK

Landscape Overview 2018

First Edition

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Longevity Industry in UK Landscape Overview

Companies - 170
Investors - 180
Non-Profits - 10
Research Centers - 10

Personalized Medicine



Investors

Companies

Non-Profits

AgeTech

Research Labs

Regenerative Medicine

Preventive Medicine

DEEP KNOWLEDGE ANALYTICS

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LONGEVITY INTERNATIONAL

170 Companies Longevity Industry in UK Landscape Overview 2018



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LONGEVITY INTERNATIONAL

Non-Profits - 50
Journals - 25
Research Labs - 25
Conferences - 20
Media entities - 10

JOURNALS



RESEARCH LABS



MEDIA ENTITIES



The Science of Longevity in UK Landscape Overview

CONFERENCES



NON-PROFITS





Biogerontology Research Foundation

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Website: <http://bg-rf.org.uk>

Contact: info@bg-rf.org.uk

The **Biogerontology Research Foundation (BGRF)** is the UK's oldest longevity non-profit organization founded by leading geroscientists. The **BGRF** funds and conducts research which aims to develop biotechnological interventions to remediate the molecular and cellular deficits which accumulate with age and which underlie the ill-health of old age. The **BGRF's** Board of Trustees include British billionaire Jim Mellon, prominent longevity investors Dmitry Kaminskiy and Jim Mellon, renowned geroscientists Dr. Alex Zhavoronkov, João Pedro De Magalhães and Dr. Richard Faragher, as well as Jim Plante.



Website:
<http://deepknowledge.life>

Contact:
info@deepknowledge.life

Deep Knowledge Life Sciences is a London based investment fund focused on ground-breaking research in life sciences and aging. **DKLS** strategically invests in mission-driven companies and supports founders who will bridge the gap between basic biological research and real-world healthcare products that extend healthy lifespan. **Insilico Medicine**, a company applying the latest advances in deep learning to biomarker development, drug discovery and aging research, is the **DKLS flagship investment**.



LONGEVITY.INTERNATIONAL

Website: <http://longevity.international>

Contact: info@longevity.international

Longevity International is an online interactive database of longevity scientists, companies, and investors. This platform allows different stakeholders in the longevity industry to connect, network, research and analyze.

On the next stage this platform will also employ *cutting-edge data visualization software and a networking section* where various stakeholders within the longevity industry can connect and collaborate, where longevity companies are matched with the right investors, and where scientists can make contributions.



Website:
<http://aginganalytics.com>

Contact:
info@aginganalytics.com

Aging Analytics Agency aims to use its knowledge of anti-aging technologies and current research paradigms to create invaluable databases and provide a supporting framework for financial decision making. The goal of **the Agency** is to promote the growth of biogerontology, enhance international collaboration, and increase interaction and cooperation between companies to benefit the field as a whole.

Advisors



Tina Woods is the founder of Collider Health, a health innovation catalyst that works with organisations of all shapes and sizes to think and do differently and transform health with meaningful impact. Tina is chair of Future Health Collective, a multi-disciplinary, cross-industry group geared to foster collaboration and radical innovation in areas of unmet need in health and social care.



Dr. de Grey is the biomedical gerontologist who researched the idea for and founded SENS Research Foundation. He received his BA in Computer Science and Ph.D. in Biology from the University of Cambridge in 1985 and 2000, respectively. Dr. de Grey is Editor-in-Chief of Rejuvenation Research, is a Fellow of both the Gerontological Society of America and the American Aging Association, and sits on the editorial and scientific advisory boards of numerous journals and organizations.



Alex Zhavoronkov PhD, is the director and a trustee of the Biogerontology Research Foundation. He heads the laboratory of regenerative medicine at the Clinical Research Center for Pediatric Hematology, Oncology and Immunology where his research interests include skin and cartilage regeneration and personalized medicine in oncology. He is also the international adjunct professor at the Moscow Institute of Physics and Technology. He is the CEO and co-founder of InSilico Medicine. He is the author of multiple peer-reviewed scientific as well as popular papers and books on aging research, including “The Ageless Generation” published by Palgrave Macmillan.



John D. Furber is the CEO and founder of Legendary Pharmaceuticals. He is an entrepreneur and scientist who has been studying the biology of aging and regeneration for more than 20 years. Currently, he is running a biotechnology company, Legendary Pharmaceuticals, which is engaged in the discovery of pharmaceutical drugs and gene therapies able to repair and reverse accumulating molecular damage to subcellular mitochondria, lysosomes, nuclei, and extracellular proteins in order to prevent and treat serious, late-onset diseases commonly associated with aging.



David A. Sinclair, Ph.D. is a Professor in the Department of Genetics and co-Director of the Paul F. Glenn Center for the Biology of Aging at Harvard Medical School. He is best known for his work on understanding why we age and how to slow its effects. He obtained his Ph.D. in Molecular Genetics at the University of New South Wales, Sydney in 1995. He worked as a postdoctoral researcher at M.I.T. with Dr. Leonard Guarente where he co discovered a cause of aging for yeast as well as the role of Sir2 in epigenetic changes driven by genome instability. He is also co-founder and co-chief editor of the journal Aging.

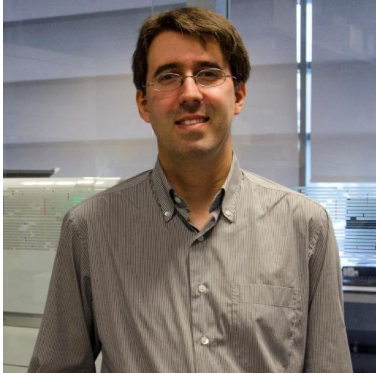


Stephen Bloch – London AgeTech and Longevity Hub at the Innovation Warehouse, specialising on investment and entrepreneur development.

Areas of focus: application of digital technologies and processes to support the older demographic and developments in healthy lifespan extension.

Mr Bloch held multiple board level positions with companies in UK, Australia, and Spain.

Advisors



João Pedro de Magalhães is a Reader in aging at the University of Liverpool and a Trustee of the Biogerontology Research Foundation. His lab at the University of Liverpool studies aging through both computational and experimental approaches. He helps maintain several databases on aging - among them - GenAge, AnAge, GenDR, the Digital Aging Atlas, and Who's Who in Gerontology. His research group helped sequence the transcriptome of the long-lived bowhead whale.

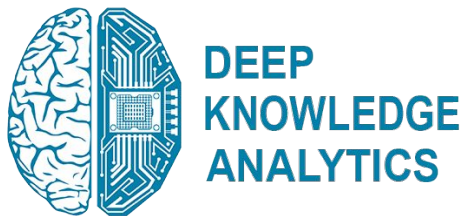


William Bains is an academic and entrepreneur. In 1999 William founded Amedis Pharmaceuticals Ltd, (which was later acquired by Paradigm Therapeutics). He has held teaching positions at Cambridge University and the University of Warwick. William continues to be engaged in research at MIT, where he is a visiting scientist researching astrobiology, and as founder and CSO of Five Alarm Bio Ltd. He is author of over 100 papers and four books.



Ilia Stambler is the Chief Science Officer of “Vetek” (Seniority) Association – The Senior Citizens Movement. He is actively involved in advocacy for aging and longevity research. He coordinates the Longevity for All network. He is chairman of the Israeli Longevity Alliance and outreach coordinator and executive committee member of the International Society on Aging and Disease. His papers have appeared in Aging and Disease, Progress in Neurobiology, Cancer Detection and Prevention, Rejuvenation Research, Current Aging Science, Global Aging, Mechanisms of Ageing and Development, Frontiers in Genetics, Geroscience, and other journals.

Institutional Partners



EXECUTIVE SUMMARY

Introducing *Longevity Industry in UK*

This special regional case study follows-up on the content and general outline of the Longevity Industry made by our consortium in the previous Longevity Industry Landscape Overviews, including [Volume I “The Science of Longevity”](#), released in February of 2018, and [Volume II “The Business of Longevity”](#), published in April of 2018; i.e. by presenting a broad yet comprehensive Global Longevity Industry Landscape Overviews.

These ongoing analytical reports are part of a collaborative project by The Global Longevity Consortium, consisting of the Biogerontology Research Foundation, Deep Knowledge Life Sciences, Aging Analytics Agency and the Longevity.International platform.

While our aim is first and foremost to provide a comprehensive assessment of the Longevity Industry globally, we are also interested in producing regional case-studies that analyze the Longevity Industry in specific geographic locations, and consider where the United Kingdom fits into this picture.

Given our significant presence in the UK, and the substantial dynamic of development in geroscience and advanced biomedicine in the region, we decided that beginning with a regional case study in the United Kingdom in particular would be most appropriate, given our specific experience and expertise with regards to the industry players and trends located in England.

The “UK Longevity Industry Report” provides a specific landscape overview of the companies, investors, articles, books, non-profits and influencers based in the UK.

The present report gives a brief history of geroscience in the UK, with a particular emphasis on developments in the past two decades which distinguish the region as a longevity-progressive country, culminating in a detailed description of the state of the industry in 2018, and identifies the present custodians of the industry's future.

We then take a broader view of the key persons and developments in regenerative medicine, geroscience, precision medicine, and gene therapies.

Why the UK?

It is hoped that a closer look at this particular country may provide a clearer case study of how these possibilities will play out, by demonstrating how this particular nation's technological, political and economic strengths and weaknesses affect its prospects for maintaining a healthy and productive population. The UK will serve as the standard against which to compare other longevity-progressive regions, most of which have disadvantages compared to the UK, but some of which might have specific advantages in particular areas compared to the UK.

The specific characteristics that make a country 'longevity-progressive' are systematized, categorized and described in detail in Chapter VI of the Longevity Industry Landscape Overview Volume II: The Business of Longevity.

How Does the United Kingdom Measure Up as a Longevity Progressive Country?

In this publication we examine how the United Kingdom in particular is equipped to weather its own incoming 'silver tsunami'. As a developed nation, the UK will be one of the first to have exponentially increasing levels of older people, as well as diminishing birth rates - leading to a lower support ratio.

The report is structured in order to introduce readers to the major trends and players in the industry via several infographic MindMaps, so that the reader can quickly ascertain the report's major analytical findings and conclusions. It provides a framework to better structure readers' understanding of the entire Longevity field. It then dives into greater detail in each successive chapter, focusing on specific areas of the Longevity industry in the UK.

- The executive summary charts the major trends in the UK longevity industry in recent years, and concludes that the UK is an excellent position to achieve a global leadership position in the Longevity industry, so long as it focuses on the optimal assembly of its existing resources. It also highlights one of the strongest conclusions to come out of this report: namely that the British government should focus on and prioritize the coordinated development of its AI, Financial and Longevity industries, not separately but in synergetic convergence.
- Chapter I gives a detailed overview of the UK longevity industry, major occurrences over recent years, and charts the landscape in depth in order to identify major trends and patterns.

- Chapter II gives a detailed overview of the history of geroscience and the Longevity industry in the UK.
- Chapter III gives comprehensive coverage of the state of the Longevity industry in the United Kingdom in 2018, and analyses the major roadblocks facing the industry, as well as what major trends and developments are likely to occur over the next several years.
- Chapter IV presents the most relevant infographic MindMaps from our previous reports

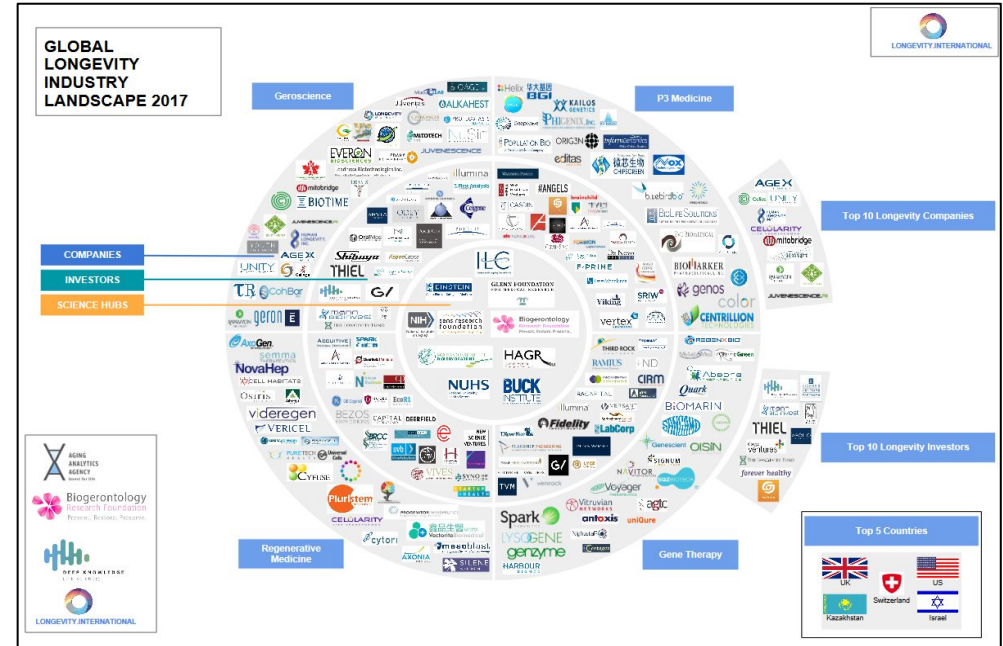
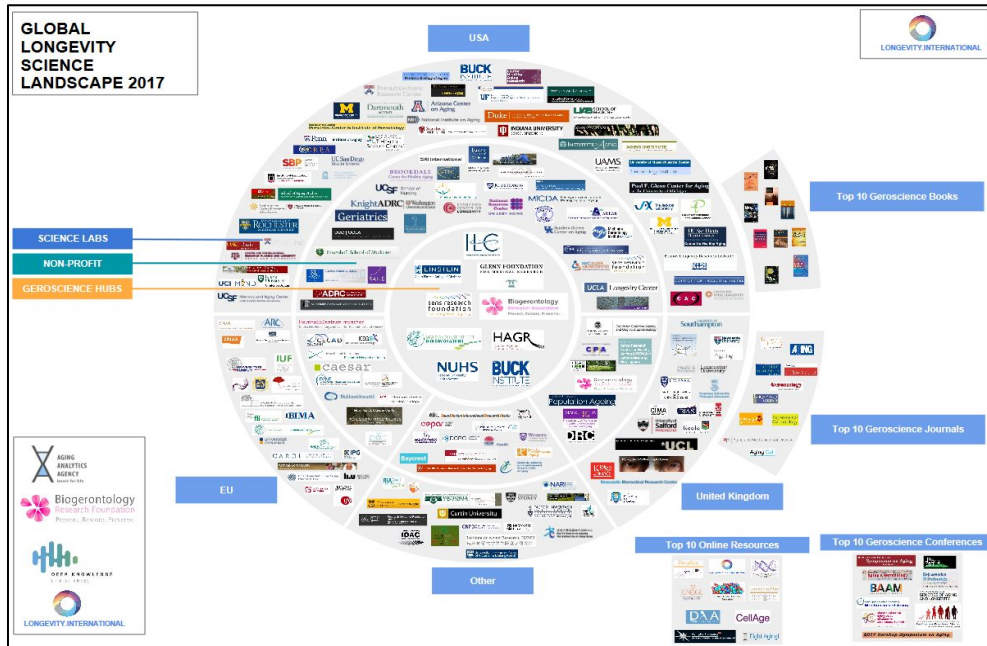
The report concludes with a detailed appendix of profiles on the major entities and influencers making up the UK Longevity industry, profiling:

- 170 Longevity companies;
- 200 Longevity investors;
- 50 Longevity articles published by UK geroscientists;
- 50 Longevity books published by UK geroscientists;
- 25 Longevity scientific journals published by UK geroscientists;
- 50 The top Longevity non-profit organizations;
- 50 Longevity influencers in the UK;
- 25 Longevity university labs and research labs.

This volume, like Volumes I and II, includes lists of profiles of companies and investors which we believe play a pivotal role at this juncture. Although these lists are based on dataset analysis and tangible metrics, they are projections and as such, are not exhaustive. The MindMaps below serve as a broad outline of the global Longevity Industry, and the present report includes similar MindMaps for the United Kingdom specifically.

“The Science of Longevity” Global Landscape

“The Business of Longevity” Global Landscape



Indeed our aim is not to create a definitive guide. Such an attempt at perfection would make an enemy of good. Our aim is to get the ball rolling. The sooner we produce consistent approximations of the industry, the sooner a consensus can emerge. Our consortium is also developing an online platform - longevity.international - for aggregating and crowdsourcing data, so that various stakeholders in the geroscience and the longevity industry, both globally and regionally, can play a role in fashioning this consensus. We are producing these reports with the expectation that they will themselves eventually be placed on the platform.

GEROSCIENCE R&D

Rejuvenation
Biotechnology

Gene Therapy

Geroprotectors

Regenerative Medicine

Nutraceuticals

Basic Research on
Biology of Aging

P3 MEDICINE

Personalized
Diagnostics

Personalized Biomarker
Analysis

Personalized
Prognostics

Personalized *in vivo* &
in silico drug testing

Personalized QALY &
HALE Estimation

Preventive Therapies

AGETECH

Novel Retirement Plans

Cognitive Enhancement

FinTech for the Elderly

NextGen Mobile Apps
for Elderly

Continuing Education

Entertainment for
Elderly

NOVEL FINANCIAL SYSTEM

Longevity Index Fund

Longevity Hedge Fund

Longevity Stock
Exchange

AgeTech Bank

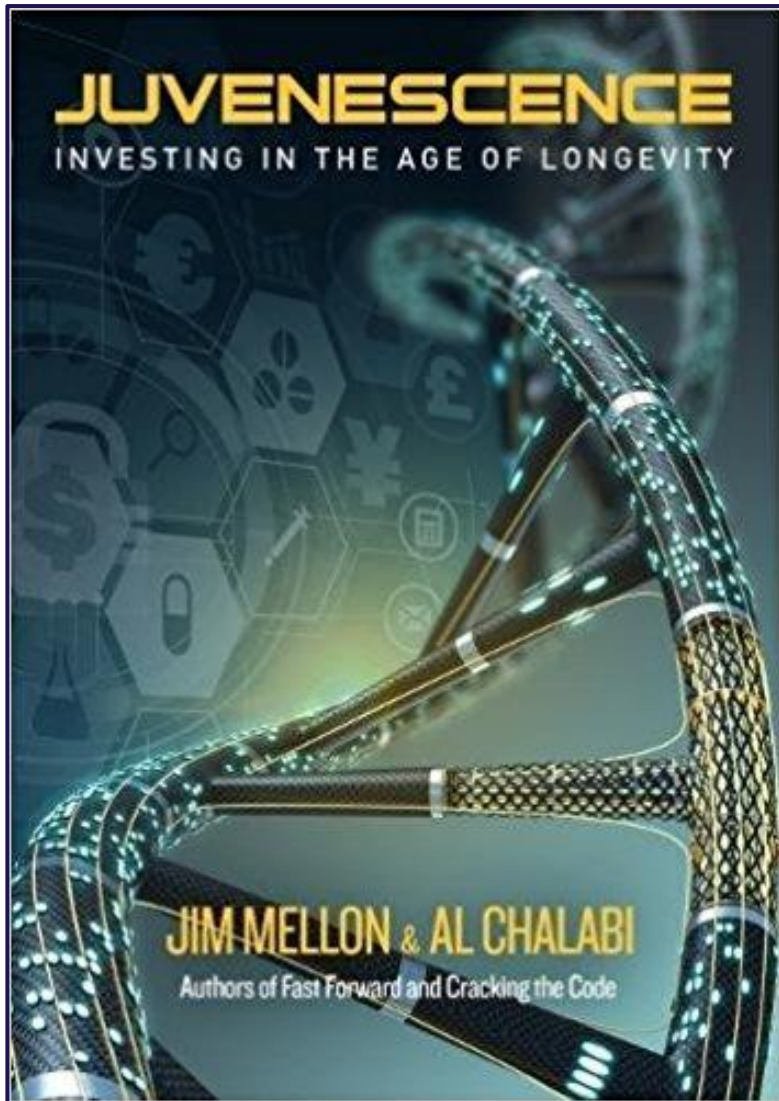
Longevity Derivatives

Longevity Trust

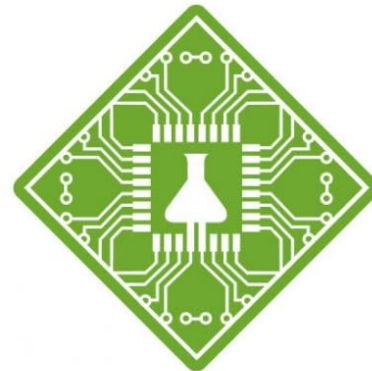
The UK has all the right elements to be a world leader in Longevity

- **Demographics:** The UK population is ageing rapidly while older people are wealthier than ever. All citizens are entitled to effective healthcare, and the birth rate is low. Money and power is therefore concentrated in the hands of those who would benefit from greater expenditure on biomedical advances. By 2040, one in 7 people in the UK will be aged over 75 – an increase from one in 12 today – while a third of children born now are expected to live to 100-years-old. 10 million British people alive today can expect to reach 100.
- **Healthcare system:** The National Health Service is a boon for, and a benefactor of an advanced longevity industry. The centralized healthcare system is an excellent testing ground for various longevity interventions. And the adoption of electronic health records means that it will be able to efficiently target patients for interventions, then collect and analyze the results. The rich data coming through the NHS is stratified by patient type and disease conditions that can be used at all stages of trials. While some data limits its usefulness in new trials, it is still uniquely available for AI-centred emerging solutions. Successful implementation of longevity focused practises will in the end yield a reduction in healthcare costs for the NHS. In contrast, the US' private healthcare insurance system does not allow for the same speed of testing and adoption.
- **Data:** The UK and its GP practices are slowly adopting new systems (**electronic health records**, EHRs) whereby patients can view their records, order medication, book appointments and more. The above-quoted Sir John Bell has said that NHS patient records are uniquely suited for driving the development of powerful algorithms that could transform healthcare and seed an “entirely new industry” in **AI-based diagnostics**. Meanwhile, researchers at an Oxford hospital have developed artificial intelligence (AI) that can diagnose scans for heart disease and lung cancer.

Present challenges at the intersection of these developing areas include the **Silver Tsunami** that is unavoidable and will impact the UK disproportionately due to its large and rapidly accumulating over-65 population. This is counteracted by advancements in **geroscience** to yield a longevity dividend, all the while the gap between scientific progress and its respective applications is being encouraged to close by Funding Bodies, to maximise public return on investment in science, and translate as much as possible of the basic science into applications for public health via the NHS.



Today the UK is home to several leading longevity industry investors. British billionaire businessman, author of 'Juvenescence: Investing in the Age of Longevity', and founder of the biotech VC fund Juvenescence Limited, Jim Mellon, has already poured funds into Insilico Medicine, Inc. an artificial intelligence company on the forefront of applying AI for Longevity that utilises advances in genomics, big data analysis, and deep learning for in silico drug discovery and drug repurposing for ageing and age-related diseases.



INSILICO MEDICINE



JUVENESCENCE.AI

The first investor in Insilico Medicine was Deep Knowledge Ventures, led by well-known Longevity investor Dmitry Kaminskiy, editor of 1500-page *Longevity Industry Landscape Overview*.

In addition to this, London is home to a large fintech industry, and when combined with the London-Oxford-Cambridge biotech triangle make the UK the site of some of the world's most advanced science and biomedicine. Add to this the UK's geographical position as a crossroads for millions of professionals exchanging ideas and resources, and it would appear that the UK has all the raw material necessary to become a longevity biotechnology hub to rival Silicon Valley, and is in a unique position to meet the approaching challenge of an ageing population. Yet still most ageing-focused companies, Calico, Unity, AgeX Therapeutics, and so on, continue to take root in the US, even though the UK matches the US in scientific manpower, scientific publications, scientific conferences and laboratory facilities. The number of scientists, universities, scientific publications and conferences is significant in the UK and does not put it at any disadvantage compared to the US. In business, Longevity in Silicon Valley is strong, but the valuation of companies is overhyped, and this puts the UK at an advantage: the same technologies and companies are evaluated more realistically. This means that the UK can compete with US, and easily outperform other countries and regions to become a significant leader in the industry, not only in terms of biomedicine, but also the integration of biomedicine with the financial industry (pension funds, insurance funds), because the Longevity industry should be considered at the convergence of Biomedicine and Financial industries.

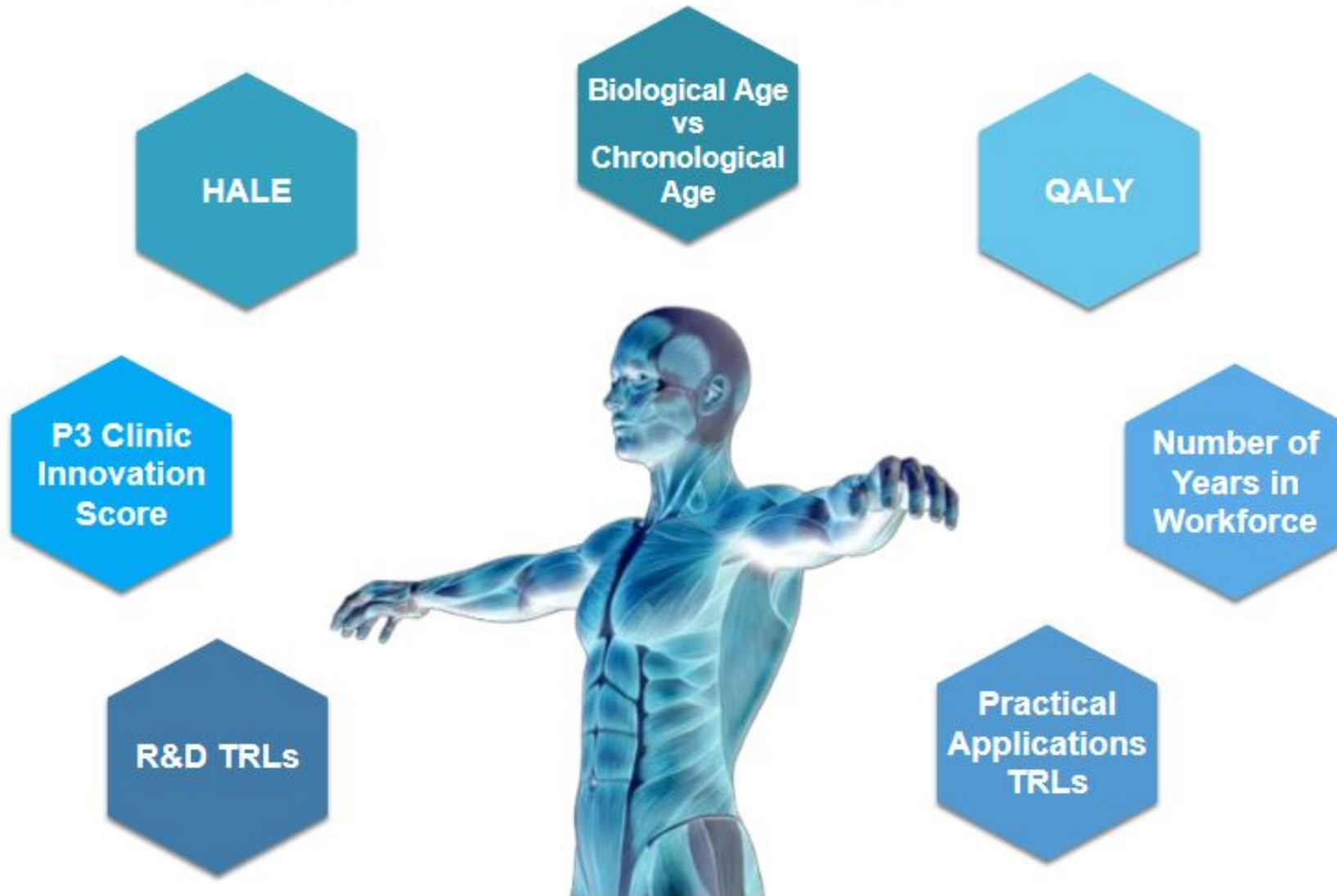
“The disappointment I had was I was hoping that a combination of the cap on care costs would help to deliver an insurer's model, where a market would grow up where everyone could insure themselves against the cost of long-term care. And we just haven't cracked that yet,” Mr Cameron said. “I'm not in politics anymore but we've got to find an answer. Given the catastrophic cost of care that people face from dementia, and I saw this with constituents, we've got to find a better answer there.”

So What's Missing? Synergy and Optimized Assembly of Existing Resources

What's missing is a political *decision* to marshal these resources effectively. Technology hubs don't just happen. There is almost always a government initiative involved at some point. Silicon Valley for example became a centre of gravity in the tech industry due to a series of government programs such as the Aeronautics and Space Act and the establishment of industrial parks. Imagine what could be achieved if the UK seized with both hands the opportunity to create a national program (in the vein of the Manhattan Project), or at at least intensively foster the Longevity industry, doing for Longevity what Japan did for robotics. The beginnings of that moment has come with the publication of the UK government's Industrial Strategy in November 2017 (see page 20).

<https://www.independent.co.uk/news/uk/politics/david-cameron-regret-alzheimers-dementia-social-care-funding-a8088031.html>

Tying Wealth to Health via Tangible Metrics



Precision Health & Health as an Asset: Tying Health to the Performance of Financial Instruments

The Integration of Health Data Science with Financial Data Science

This report seeks to document what makes the UK fertile ground for a global Longevity industry hub, and how that ground could be developed. The UK is an undoubtable world leader in both the finance and FinTech industries. There is growing evidence that it will become a global hub for AI, in the form of both an exponentially growing UK-based AI industry, as well as in the form of government initiatives which have prioritised development of Artificial Intelligence industry. Indeed, the UK government announced four Grand Challenges poised to transform the nation's future, and which should be treated as priority areas of national development both due to their potential impact on the UK economy, as well as due to the impact they are likely to have upon society in general. These four priority areas are:

- 1. Growing the AI and Data-Driven Economy**
- 2. Clean Growth**
- 3. The Future of Mobility**
- 4. The Ageing Society**

It is notable that both Artificial Intelligence and The Aging Society are among the Government's four top priorities for national, government-led development. If the UK government would apply a strategist for the synergetic development of these two industries, especially on the front of applying AI to preventive medicine and primary care, then, then the UK would be in an excellent position to reap many synergetic resulting from the convergence of these two spheres, i.e. AI and Longevity, increasing healthy lifespans and delivering a 'longevity dividend' from The Aging Society. Even more importantly, it is clear from our analysis both in the UK and globally, that the spheres of Finance, AI and Longevity, while still seen as separate industries by many, are recognized by more advanced thinkers as highly synergistic, with the potential to converge so as to create personalised new products and services delivering more value to consumers. Our previous report, *Global Longevity Industry Landscape Overview Volume II: "The Business of Longevity"*, concluded that Longevity Industry does not consist solely of biomedicine, but that P3 medicine, the AgeTech market and the global financial industry are also crucial subsectors of the Longevity industry, given the significant impact that societal ageing and Longevity have upon economies in general and the economic burden of healthcare, pension funds and insurance companies in particular, as well as the fact that multiple types of financial entities have the potential to tie their performance to quantitative measures of healthy longevity like HALY and QALY in order to help economies thrive in response to an increase in its citizens healthy longevity. One of the strongest conclusions to come out of this report is that the UK has more than enough resources in each of these three sectors; nonetheless, the nation should focus on cross sector collaboration across its **Longevity, Artificial Intelligence and Financial** industries, not separately but in **synergetic convergence**, to accelerate innovation at scale.

Chapter I

UK Longevity Industry Landscape Overview

Introduction

Chapter I serves as a broad infographic summary of the entire UK Longevity Industry Landscape.

We have identified, aggregated and mapped the various entities and stakeholders comprising the UK Longevity Industry Landscape in its entirety.

In-depth profiles of these entities can be found in the Appendix section of the present report. This chapter, however, allows readers to acquire a birds-eye-view of the landscape in one fell swoop.

Entities and stakeholders profiled include:

- 150 UK-based Longevity companies
- 200 UK-based Longevity investors
- 50 scientific articles authored by UK-based scientists
- 50 UK-based Longevity Non-Profit Organizations
- 25 UK-based Longevity-Focused Scientific Journals
- 50 Longevity Books authored by UK-based authors or published by UK-based publishers
- 50 UK-based Longevity Influencers
- 25 UK-based Longevity Research Labs and University-based R&D Hubs

170 Companies / Longevity in UK

1. Abcodia	29. Braintrain 20:20	57. DrThom
2. Abzena plc	30. BrainWaveBank	58. Eagle Genomics
3. Adaptimmune	31. C4X Discovery	59. Earlham Institute
4. Aerobit Health	32. Cambridge Biolabs	60. EnteroBiotix
5. AHA Health	33. Cambridge Oncometrix	61. Epistem Holdings
6. Akari Therapeutics	34. CareRooms	62. eScent
7. Alcove	35. CareZapp	63. eTherapeutics
8. Ally Smart Care	36. Celixir	64. Evox Therapeutics
9. Altacor	37. Cell Guidance Systems	65. Freeline Therapeutics
10. AMO Pharma	38. Cell Medica	66. Genedrive Plc
11. Aparito	39. CellAge	67. Give & Take Care
12. Arcis Biotechnology	40. CellCap Technologies	68. Graphnet Health
13. Aridhia Informatics	41. CellCentric	69. GW Pharmaceuticals
14. Arrayjet	42. Celleron Therapeutics	70. Healx
15. ARUK-Arthritis Research UK	43. Cellesce	71. Hello Daisy
16. Astex	44. Cera	72. Heptares Therapeutics
17. Atlas Biomed Group	45. Chronos Therapeutics	73. Heterogeneous
18. Auriens	46. Cobra Biologics	74. Horizon Discovery
19. Autism Biotech	47. Cognition Kit	75. Howz
20. Autolus Limited	48. Collagen Solutions	76. hVIVO
21. Avalon AI	49. Complete Care	77. iamYiam
22. Avita Medical	50. CRISPR Therapeutics	78. IDIS
23. babylon health	51. CTRL Group	79. ImmuPharma
24. BenevolentAI	52. Curam	80. IntelliHep
25. Biogelx	53. Cytos	81. Invizius
26. Bioline	54. Definigen	82. Jellagen
27. BioMoti	55. Destiny Pharma	83. Kalgera
28. Blue Maestro	56. Diagnostic Healthcare	84. Kareinn

170 Companies / Longevity in UK

85.	Kemuri	115.	Oxford Biodynamics	145.	Sernova
86.	Kraydel	116.	Oxford BioMedica	146.	Sistemic
87.	Lab21	117.	Oxford Gene Technology	147.	SkyePharma (Acquired by Vectura)
88.	Levicept	118.	Oxford Genetics	148.	Solentim
89.	Lifeline 24	119.	Oxstem	149.	Sphere Fluidics
90.	LIFNano Therapeutics	120.	Patients Know Best	150.	StoriiCare
91.	LIFT BioSciences	121.	Perfectus Biomed	151.	Suisse Life Science Group plc
92.	Memrica	122.	Phico Therapeutics	152.	Swift Molecular Diagnostics
93.	Methuselah Health	123.	Phoqus Pharmaceuticals	153.	Synpromics Ltd
94.	Michelson Diagnostics	124.	PhoreMost	154.	T7
95.	Micrima	125.	Physiomics	155.	TC BioPharm
96.	miiCARE	126.	Plasticell	156.	Theolytics
97.	Minatx	127.	PneumaCare	157.	Tissue Regenix
98.	Molecular Vision	128.	Precision Medicines	158.	Touch Bionics
99.	Mologic	129.	Premaitha Health	159.	Tunstall Healthcare Group
100.	Monica Healthcare	130.	Proteome Sciences	160.	ukactive
101.	Mursla	131.	Proximagen	161.	ValiRX
102.	Nanokick Technologies	132.	Psioxus Therapeutics	162.	Verona Pharma
103.	nanoTherics	133.	Q Chip (Acquired by Midatech Pharma)	163.	Vertex Pharmaceuticals
104.	Nemaura Pharma			164.	Vida
105.	NeoPhore	134.	QuantuMDx Group	165.	Videregen
106.	NeRRe Therapeutics	135.	Quethera	166.	VirionHealth
107.	Nightstar Therapeutics	136.	ReMe	167.	Virtu Biologics
108.	Nuclera Nucleics	137.	ReNeuron Group	168.	Walk With Path
109.	Open Bionics	138.	Rexgenero	169.	Xenetic Biosciences
110.	Open Inclusion	139.	Rightangled	170.	Zio Health
111.	Optibiotix Health	140.	Rogue Resolutions		
112.	Orca Pharmaceuticals	141.	Roslin Cells		
113.	Orchard Therapeutics	142.	SAGE Therapeutics		
114.	Orthogem	143.	Scancell		
		144.	Sensio Air		

List of Investors / Longevity in UK

1. 24 Haymarket	31. Catapult Ventures	61. Franklin Templeton Investments
2. 4BIO Capital	32. Cedar Mundi Ventures	62. Gilde Healthcare
3. Abingworth	33. Celgene	63. GlaxoSmithKline
4. Advent Life Sciences	34. Cera	64. Global Health Investment Fund (GHIF)
5. Advent Venture Partners	35. Charterhouse Capital Partners	65. Goldman Sachs
6. Agent Capital	36. China Medical System Holdings Limited	66. Grima Ventures
7. Aisling Capital	37. Clarendon Fund Managers	67. Guinness Asset Management
8. Albion Capital Group	38. Clarus Ventures	68. Hambro Perks Ltd.
9. Amadeus Capital Partners	39. Clough Capital Partners	69. HAX
10. Angel CoFund	40. Clydesdale Bank	70. Henderson Global Investors
11. Angel Investment Network	41. Cowen Group	71. Horizon Discovery
12. Angels in MedCity	42. Creandum	72. Hoxton Ventures
13. Aquarius Equity Partners	43. Credo Ventures	73. Human Longevity
14. ARCH Venture Partners	44. Crowdcube	74. Hygea VCT
15. Archangels	45. Deerfield	75. Imperial Innovations
16. Arix Bioscience	46. Downing LLP	76. Index Ventures
17. Baillie Gifford	47. Downing Ventures	77. Innovate U.K.
18. Balderton Capital	48. Draper Esprit	78. Innovations New Ventures
19. Bank of America Merrill Lynch	49. Draper Fisher Jurvetson (DFJ)	79. Invesco
20. Baxter International	50. EcoR1 Capital	80. Invesco Perpetual
21. Beringea	51. Edmond de Rothschild Investment Partners	81. Invest Northern Ireland
22. Bethnal Green Ventures	52. Enterprise Ventures	82. J.P. Morgan Securities Inc.
23. Bill & Melinda Gates Foundation	53. Equity Gap	83. JamJar Investments
24. BioMotiv	54. European Commission, European Innovation	84. Janssen Pharmaceuticals
25. BioScience Managers Limited	55. Eurostars	85. Juno Capital
26. Calculus Capital	56. F-Prime Capital Partners	86. Kairos
27. California Institute for Regenerative Medicine	57. Finance Wales	87. Kima Ventures
28. Cambridge Angels group	58. Forbion Capital Partners	88. Kinnevik AB
29. Cambridge Capital Group	59. Foresite Capital	89. KIZOO
30. Cambridge Innovation Capital plc	60. Fountain Healthcare Partners	90. Korea Investment Partners

List of Investors / Longevity in UK

91.	KTB Network	121.	OrbiMed	151.	Teva Pharmaceutical Industries
92.	L Marks	122.	Oxford Capital Partners	152.	The Capital Fund
93.	Lansdowne Partners	123.	Oxford Technology Management	153.	The Discovery Fund, Cambridge University
94.	Lanstead Capital	124.	Parkwalk Advisors Ltd	154.	The North West Fund
95.	Lundbeck	125.	Pavilion Capital	155.	Third Rock Ventures
96.	Lundbeckfonden Ventures	126.	Pitch@Palace	156.	Touchstone Innovations
97.	Masa Life Science Fund	127.	Quester Capital	157.	Twist Bioscience
98.	MassChallenge	128.	QVentures	158.	UCL Technology Fund
99.	Mentor Capital	129.	QVT Financial	159.	UCLB
100.	Mercia Technologies	130.	RA Capital Management	160.	UK Innovation & Science Seed Fund Rainbow Seed Fund
101.	Merlin Nexus	131.	Redmile Group	161.	UK Trade & Investment (UKTI)
102.	Ministry of Defence - UK	132.	Ridgeback Capital	162.	University of Bristol Enterprise Fund
103.	Morgan Stanley	133.	Roche Venture Fund	163.	University of Cambridge Enterprise
104.	MVM Life Science Partners	134.	Rock Springs Capital	164.	University of Edinburgh
105.	Nesta Ventures	135.	RTW Investments LLC	165.	University of Oxford
106.	New Enterprise Associates	136.	Scottish Enterprise	166.	UnLtd
107.	New Leaf Venture Partners	137.	Seedcamp	167.	Upsher Smith Laboratories
108.	New Wave Ventures	138.	Seneca Partners	168.	venBio Partners
109.	Newable Private Investing	139.	Sixth Element Capital	169.	Venrock
110.	Nextech Invest	140.	Smith & Nephew	170.	Versant Ventures
111.	NHN Investment	141.	SOSV	171.	Vertex Pharmaceuticals
112.	NHS England	142.	SPARK Impact	172.	Vivo Capital
113.	North West Fund for Biomedical	143.	SR One	173.	Wellcome Trust
114.	Novartis Venture Fund	144.	Stanley Family Foundation	174.	Wellington Capital Management
115.	Novo A/S	145.	Sustainable Development Technology Canada	175.	White Rose Technology Seedcorn Fund
116.	NVM Private Equity	146.	Syncona Partners LLP	176.	Winton Ventures
117.	NYU Innovation Venture Fund	147.	Takeda Ventures	177.	Woodford Investment Management
118.	Oceania Capital Partners	148.	Technology Venture Partners	178.	Wren Capital
119.	Octopus Ventures	149.	techstart NI	179.	Xenos
120.	Odey Asset Management	150.	Temasek Holdings	180.	yabeo capital

Articles on Longevity Published by British Scientists

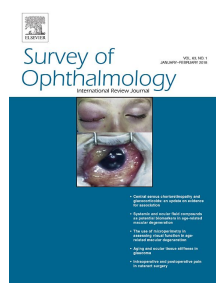
1. The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease.
2. The age distribution of cancer and a multi-stage theory of carcinogenesis.
3. The role of oxidative stress in the pathogenesis of age-related macular degeneration.
4. The association between quantitative measures of dementia and of senile change in the cerebral grey matter of elderly subjects.
5. Interactions between glutamatergic and monoaminergic systems within the basal ganglia--Implications for schizophrenia and Parkinson's disease.
6. Early-onset Alzheimer's disease caused by mutations at codon 717 of the beta-amyloid precursor protein gene.
7. Folate, vitamin B12, and serum total homocysteine levels in confirmed Alzheimer disease.
8. A DNA damage checkpoint response in telomere-initiated senescence
9. Selective loss of central cholinergic neurons in Alzheimer's disease.
10. Basal lipid peroxidation in substantia nigra is increased in Parkinson's disease.
11. Research criteria for the diagnosis of Alzheimer's disease: Revising the NINCDS-ADRDA criteria.
12. Body fat assessed from total body density and its estimation from skinfold thickness: Measurements on 481 men and women aged from 16 to 72 years.
13. Ageing and Parkinson's disease: Substantia nigra regional selectivity.
14. Global prevalence of dementia: A Delphi consensus study.
15. The relevance of the Lewy body to the pathogenesis of idiopathic Parkinson's disease.
16. Segregation of a missense mutation in the amyloid precursor protein gene with familial Alzheimer's Disease.
17. Multiple isoforms of human microtubule-associated protein tau: Sequences and localization in neurofibrillary tangles of Alzheimer's disease.
18. A voxel-based morphometric study of ageing in 465 normal adult human brains.
19. Effect of age and high blood pressure on baroreflex sensitivity in man.
20. Cerebral blood flow in dementia.
21. The moulding of senescence by natural selection.
22. Telomere reduction in human colorectal carcinoma and with ageing.
23. Accuracy of clinical diagnosis of idiopathic Parkinson's disease: A clinico-pathological study of 100 cases.
24. Identification of a novel aspartic protease (Asp 2) as beta-secretase.
25. Oxidative stress in Parkinson's disease.
26. Why do we age?
27. Age-specific relevance of usual blood pressure to vascular mortality: A meta-analysis of individual data for one million adults in 61 prospective studies.
28. Electrical stimulation of the subthalamic nucleus in advanced Parkinson's disease.
29. Instability and decay of the primary structure of DNA.
30. Consensus guidelines for the clinical and pathologic diagnosis of dementia with Lewy bodies (DLB): Report of the consortium on DLB international workshop.
31. An unsolved problem of biology.
32. A pathogenic mutation for probable Alzheimer's disease in the APP gene at the N-terminus of beta-amyloid.
33. Neuropathology of human Alzheimer disease after immunization with amyloid-beta peptide: A case report.
34. The maintenance of the accuracy of protein synthesis and its relevance to ageing.
35. Cloning of the gene containing mutations that cause PARK8-linked Parkinson's disease.
36. A five-year study of the incidence of dyskinesia in patients with early Parkinson's disease who were treated with ropinirole or levodopa.
37. Transition metals, ferritin, glutathione, and ascorbic acid in parkinsonian brains.
38. Macrophage phagocytosis of aging neutrophils in inflammation. Programmed cell death in the neutrophil leads to its recognition by macrophages.
39. Mitochondrial complex I deficiency in Parkinson's disease.
40. Pravastatin in elderly individuals at risk of vascular disease (PROSPER): A randomised controlled trial.
41. alpha-Synuclein in filamentous inclusions of Lewy bodies from Parkinson's disease and dementia with lewy bodies.
42. Alpha-synuclein in Lewy bodies.
43. Binding of human apolipoprotein E to synthetic amyloid beta peptide: Isoform-specific effects and implications for late-onset Alzheimer disease.
44. Observations on the brains of demented old people.
45. p53 mutant mice that display early ageing-associated phenotypes.
46. Hereditary early-onset Parkinson's disease caused by mutations in PINK1.
47. Free radicals and antioxidants in normal physiological functions and human disease.
48. Questioning Macular Pigment Measurement Methods and Genetic Risk of Age-Related Macular Degeneration.
49. Tau proteins of Alzheimer paired helical filaments: abnormal phosphorylation of all six brain isoforms.
50. Sequencing of exons 16 and 17 of the beta-amyloid precursor protein gene in 14 families with early onset Alzheimer's disease fails to reveal mutations in the beta-amyloid sequence.



The diagnosis of mild cognitive impairment due to Alzheimer's disease



The age distribution of cancer and a multi-stage theory of carcinogenesis



The role of oxidative stress



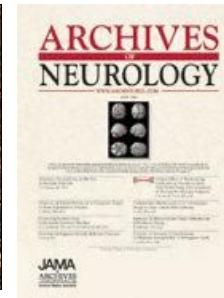
The association between quantitative measures



Interactions between glutamatergic and monoaminergic systems



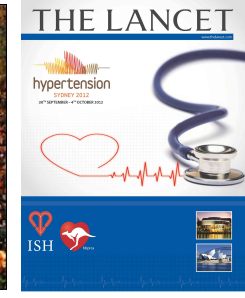
Early-onset Alzheimer's disease



Folate, vitamin B12, and serum total homocysteine levels



A DNA damage checkpoint response in telomere-initiated senescence



Selective loss of central cholinergic neurons in Alzheimer's disease



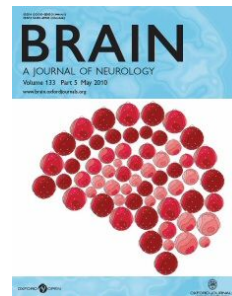
Basal lipid peroxidation in substantia nigra is increased in Parkinson's disease



Research criteria for the diagnosis of Alzheimer's disease



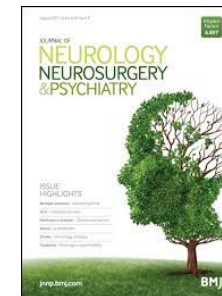
Body fat assessed from total body density and its estimation from skinfold thickness



Ageing and Parkinson's disease



Global prevalence of dementia



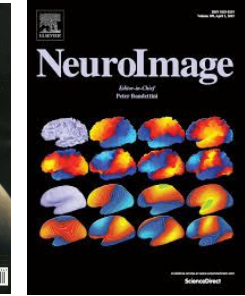
The relevance of the Lewy body



Segregation of a missense mutation



Multiple isoforms of human microtubule-associated protein tau



A voxel-based morphometric study of ageing in 465 normal adult human brains



Effect of age and high blood pressure on baroreflex sensitivity in man



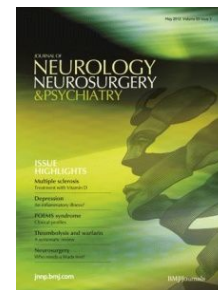
Cerebral blood flow in dementia



The moulding of senescence by natural selection



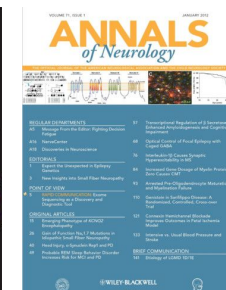
Telomere reduction in human colorectal carcinoma and with ageing



Accuracy of clinical diagnosis of idiopathic Parkinson's disease



Identification of a novel aspartic protease (Asp 2) as beta-secretase



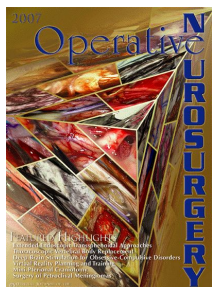
Oxidative stress in Parkinson's disease



Why do we age?



Age-specific relevance of usual blood pressure to vascular mortality



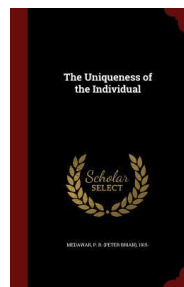
Electrical stimulation of the subthalamic nucleus in advanced Parkinson's disease.



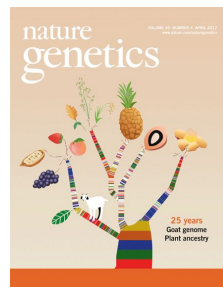
Instability and decay of the primary structure of DNA



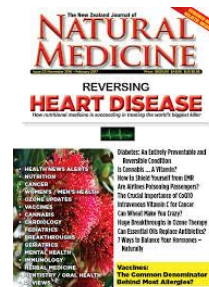
Consensus guidelines for the clinical and pathologic diagnosis



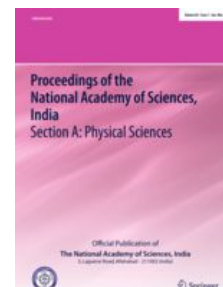
An unsolved problem of biology



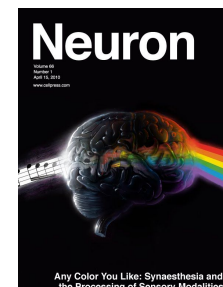
A pathogenic mutation for probable Alzheimer's disease



Neuropathology of human Alzheimer disease



The maintenance of the accuracy of protein synthesis and its relevance to ageing



Cloning of the gene containing mutations



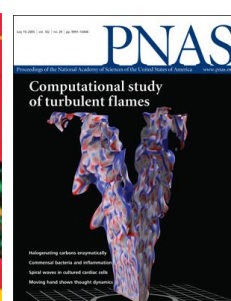
Selective loss of central cholinergic neurons in Alzheimer's disease



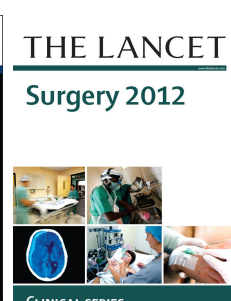
Macrophage phagocytosis of aging neutrophils in inflammation



Mitochondrial complex I deficiency in Parkinson's disease



Increased amyloid beta-peptide deposition



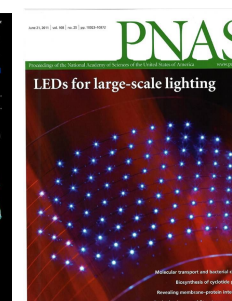
Pravastatin in elderly individuals at risk of vascular disease



alpha-Synuclein in filamentous inclusions



Alpha-synuclein in Lewy bodies



Binding of human apolipoprotein E to synthetic amyloid beta peptide



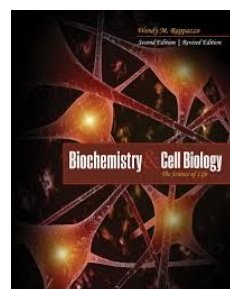
Observations on the brains of demented old people



p53 mutant mice that display early ageing-associated phenotypes



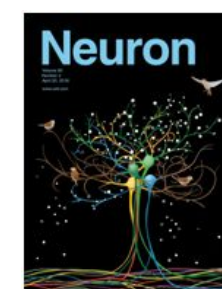
Hereditary early-onset Parkinson's disease caused by mutations in PINK1



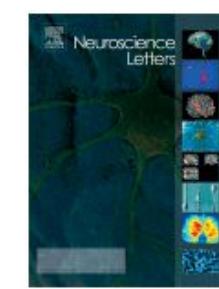
Free radicals and antioxidants in normal physiological functions and human disease



Questioning Macular Pigment Measurement Methods and Genetic Risk of Age-Related Macular Degeneration.

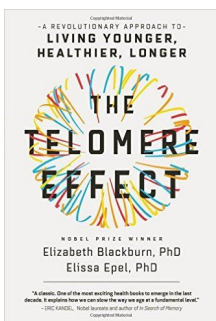


Tau proteins of Alzheimer paired helical filaments: abnormal phosphorylation of all six brain isoforms

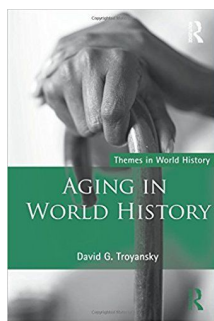


Sequencing of exons 16 and 17 of the beta-amyloid precursor protein gene in 14 families with early onset Alzheimer's disease fails to reveal mutations in the beta-amyloid sequence.

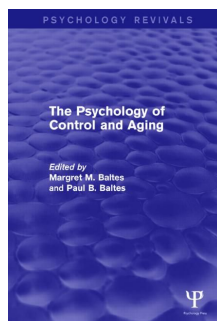
Books on Longevity Published in UK



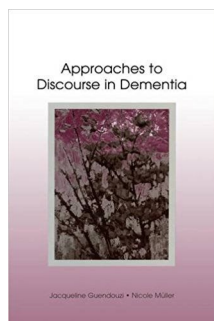
The Telomere Effect



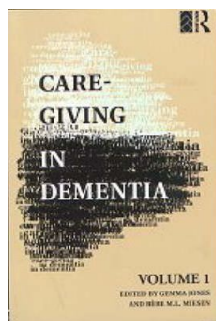
Aging in World History



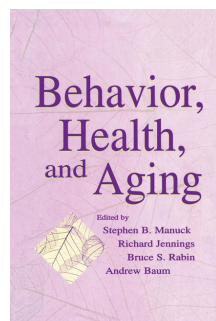
The Psychology of Control and Aging



Approaches to Discourse in Dementia



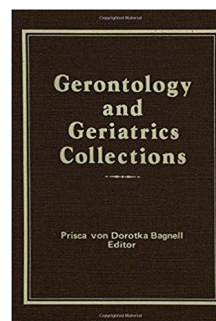
Care-Giving in Dementia



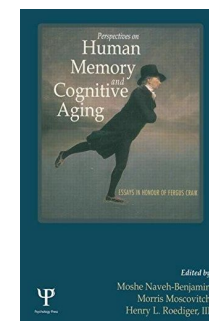
Behavior, Health, and Aging



Ageing Populations in Post-Industrial Democracies



Gerontology and Geriatrics Collections



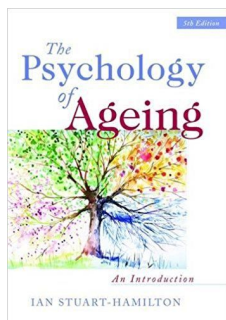
Perspectives on Human Memory and Cognitive Aging



Aging and economic growth in the pacific region



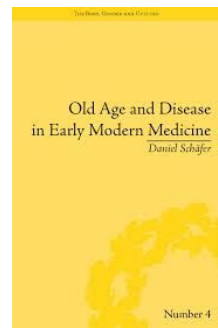
Researching later life and ageing



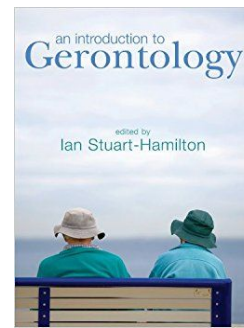
The psychology of ageing: an introduction



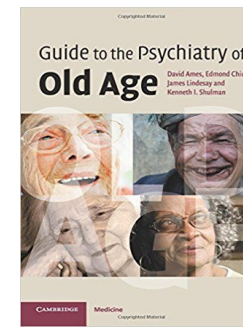
Representing ageing: images and identities



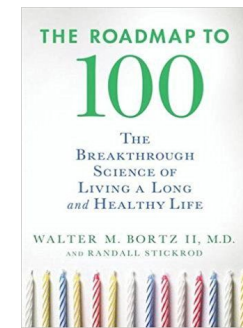
Old age and disease in early modern medicine



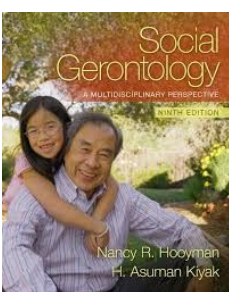
An introduction to gerontology



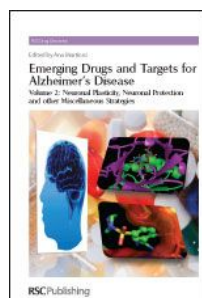
Guide to the psychiatry of old age



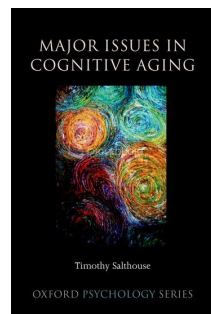
The roadmap to 100



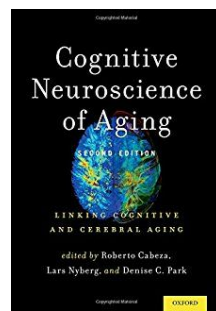
Social Gerontology



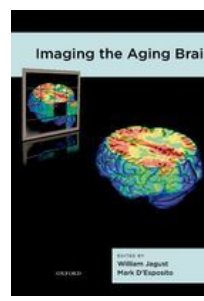
Emerging drugs and targets for Alzheimer's disease



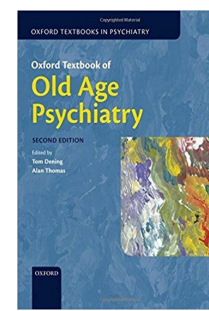
Major issues in cognitive aging



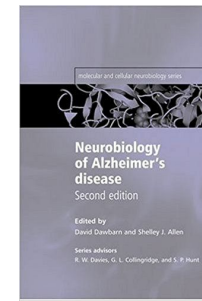
Cognitive Neuroscience of Aging



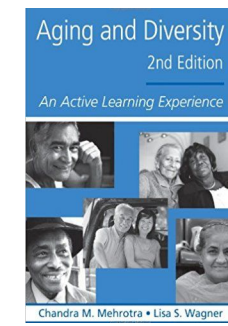
Imaging the Aging Brain



Oxford textbook of old age psychiatry

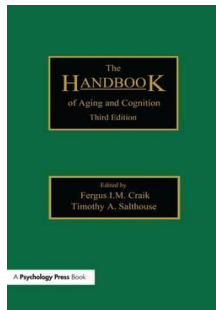


Neurobiology of Alzheimer's disease



Aging and Diversity

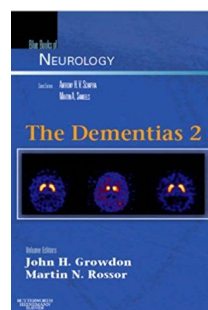
Books on Longevity Published in UK



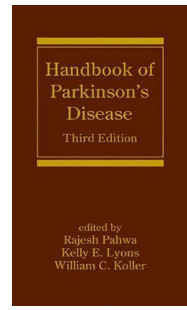
The Handbook of Aging and Cognition



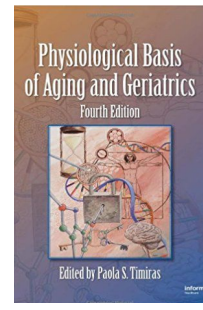
Ageing in Asia



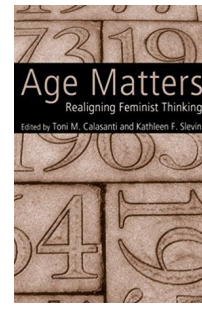
Blue Books of Neurology Series



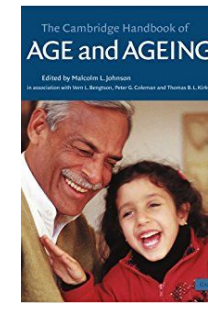
Handbook of Parkinson's disease



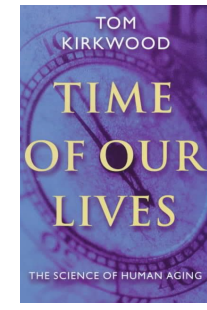
Physiological basis of aging and geriatrics



Re-Aligning Feminist Thinking



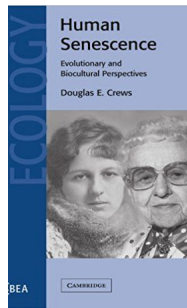
The Cambridge handbook of age and ageing



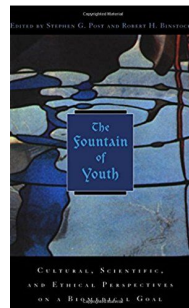
Time of our lives: the science of human aging



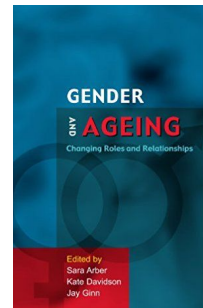
Successful Aging



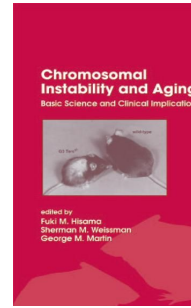
Human senescence



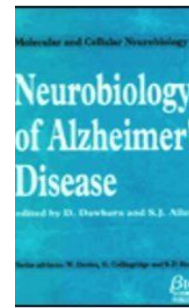
The fountain of youth



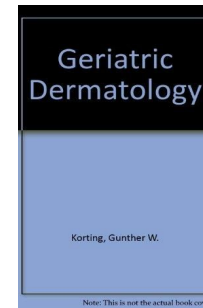
Gender and Ageing



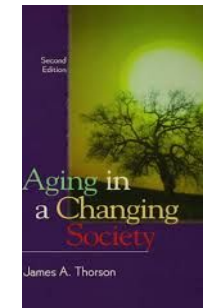
Chromosomal instability and aging



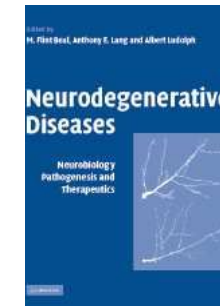
Neurobiology of Alzheimer's disease



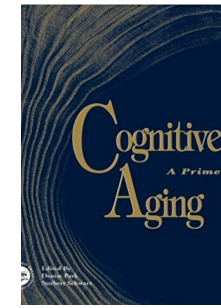
Geriatric dermatology



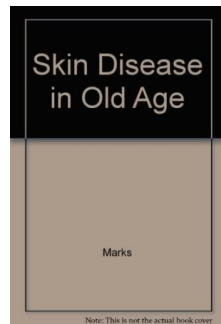
Aging in a Changing Society



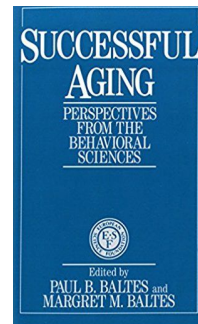
Neurodegenerative diseases



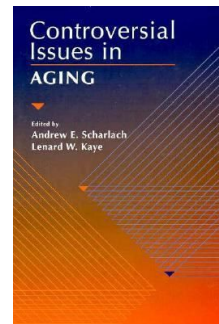
Cognitive Aging: A Primer



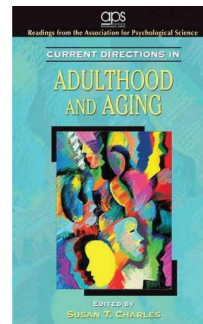
Skin disease in old age



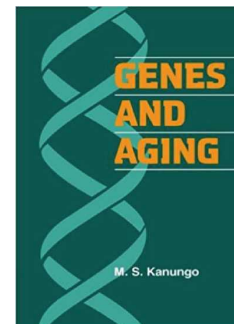
Successful Aging



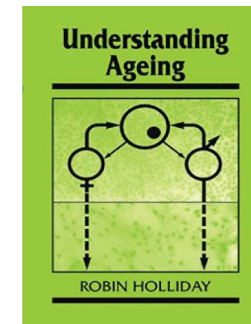
Controversial issues in Aging



Current Directions in Adulthood and Aging



Genes and aging

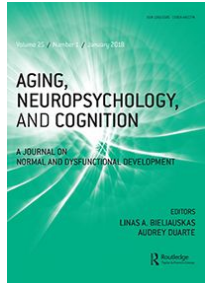


Understanding ageing



Understanding aging and diversity

UK Longevity Journals



Agging, Neuropsychology and Cognition



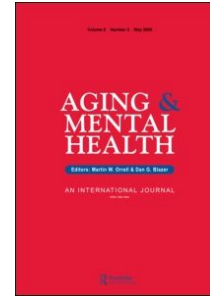
International Journal of Education and Ageing



Age and Ageing



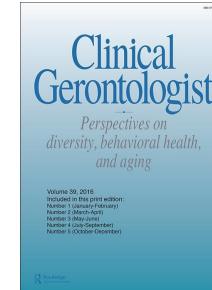
Ageing & Society



Agging & Mental Health



Agging Health



Clinical Gerontologist



Journal of Aging, Humanities, and the Arts



Ageing Horizons



Alzheimer's Research & Therapy



Canadian Journal on Aging



Dementia



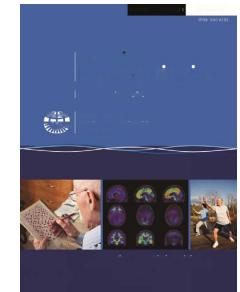
Educational Gerontology



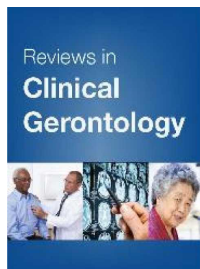
Experimental Aging Research



Immunity & Ageing



International Psychogeriatrics



Reviews in Clinical Gerontology



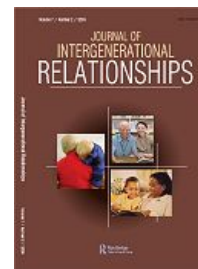
The Aging Male



The Journals of Gerontology, Series A: Biological Sciences



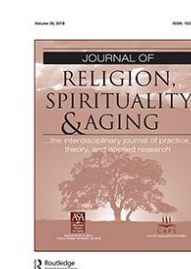
Molecular Neurodegeneration



Journal of Intergenerational Relationships



The Journals of Gerontology, Series B: Psychological Sciences



Journal of Religious Gerontology



Work, Aging and Retirement



British Medical Journal

UK Longevity Non-Profit Organizations



Age UK
Love later life



Agile Ageing Alliance



Alzheimer's Disease International (ADI)
The global voice on dementia



Alzheimer's Society
United Against Dementia



APPG Housing and Care for Older People



Association for Education & Ageing (AEA)



British Geriatrics Society (BGS)



British Longevity Society



British Society for Research on Ageing (BSRA)



Cambridge Centre for Ageing and Neuroscience



CASMI



Centre for Better Ageing



Centre for Health and Human Performance



Centre for Policy on Ageing (CPA)
New attitudes to old age...



Centre for Research on Ageing and Gender (CRAG)
CENTRO DE INVESTIGACION EN AGRIENOMIA



Centre for Social Gerontology



Clinical Ageing Research Unit (CARU)



Collider Health



Dementia Research Centre (DRC)



Alzheimer's Research UK
The Power to Defeat Dementia



International Longevity Centre



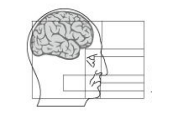
Kingston University



Knowledge Transfer Network



Manchester Institute for Collaborative Research on Ageing (MICRA)
The University of Manchester
Manchester Institute of Biotechnology



Max Planck UCL Centre for Computational Psychiatry and Ageing Research



Medawar Centre for Healthy Ageing Research



New Dynamics of Ageing



NIHR Newcastle Biomedical Research Centre (BRC)



Oxford Institute of Population Ageing



Charity, Friends of the Elderly



Salford Institute for Dementia



The Positive Ageing Company



The Silver Line
helpline for older people



Contact the Elderly



UCL Innovation and Enterprise



Help Age International



Wolfson Centre for Age-Related Diseases (Wolfson CARD)



Centre for Integrated Systems Biology of Ageing and Nutrition (CISBAN)



British Society of Gerontology (BSG)



Digital Health and Care Alliance



Digital Health and Care Institute



Digital Health.London



European Parkinson's Disease Association (EPDA)



Health Foundry



Institute of Ageing and Chronic Disease Research



Imperial White City I-HUB



Independent Age



Alzheimer's Association UK



Institute of Healthy Ageing (IHA)



Biogerontology Research Foundation



David Sinclair



**Baroness Sally
Greengross
OBE**



Eric Kihlstrom



Helen Whately



John Bell



Narendra Patel



Charles Alessi



Aubrey de Grey



Tina Woods



Jim Mellon



**Dmitry
Kaminskiy**



David Amess

Top Longevity Scientists and Experts



Malcolm Jackson



Tom Kirkwood



George P. Willis



Helen R. Griffiths



Martin Green



Anders Sandberg



Tim Spector



Ben Franklin



Andrew Scott



Qing-Jun Meng



Ilora Gillian Finlay



**Leslie Arnold
Turnberg**



Dame Denise Platt



Philippa Whitford



Linda Partridge



David Kipling



Paul Keith Potter



Julia Neuberger



John Speakman



Suzanne Wait



Jon Date

Top Longevity Scientists and Experts



Paul Thornalley



Janet Thornton



Manlio Vinciguerra



Thomas von Zglinicki



William Bains



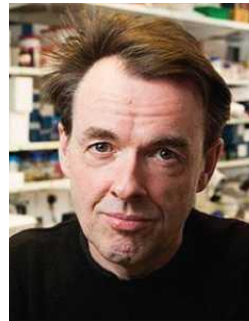
Richard Barker



Richard Faragher



Robert Freitas



David Gems



Andrew Krentz



Aisling Burnand



J. P. de Magalhaes



Anne McArdle



Cleo Bishop



Dr Richard Siow



John Pattison



Maggie Throup



Peter Adams



Janet M. Lord



Colin Blakemore



Sally-Marie Bamford

Universities & Research Labs



BIAS



C4AR



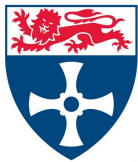
BRF



ARCHA



CCACE



CISBAN



SID



PARI



GARN



CARU



OIPA



CIMA



NDORMS



FCI



IACDR



CRA



ATI



MICRA



UbbLE



ILC - UK



Aging Research at King's



IHA



CRAG



MCHAR



Centre for Social Gerontology

Chapter II

History of Geroscience in the UK

A History of Geroscience in the United Kingdom

In 2000, the International Longevity Centre – United Kingdom was established, dedicated to “addressing issues of longevity, ageing and population change.” The organization became one of the major branches of the International Longevity Center – US, established in 1990 by the American gerontologist Robert Neil Butler.

In 1992, the British Longevity Society was established by Marios Kyriazis. Kyriazis has been a staunch supporter and provider of anti-aging medicine, which he defined as a “branch of medical science and clinical medicine, aimed at treating some of the underlying processes of ageing and at alleviating or postponing any age-related ailments, with the ultimate goal of extending the healthy lifespan of humans” (2006).

Since 2002, the SENS project (Strategies for Engineered Negligible Senescence) has been led by Dr. Aubrey David Nicholas Jasper de Grey of Cambridge. Up-to-date, this has been perhaps the most ambitious life-extensionist endeavor in UK, perhaps in the world. The SENS project synthesizes various approaches toward “curing aging”: biological replacements, maintaining homeostasis, repairing molecular damage by genetic engineering, eliminating metabolic waste products by enzymatic catalysis and other methods. SENS suggests testing specific interventions against “The Seven Deadly Things”, the seven types of pathogenic damage that accumulate with age: cell loss or atrophy, nuclear mutations and epimutations, mutant mitochondria, cellular senescence, extracellular cross-links, extracellular junk, and intracellular junk.

On May 10-11, 2010, a conference was held by the Royal Society in London, entitled “The New Science of Ageing.” The conference focused on pharmacological and genetic control of aging and experimental life-extension, and brought together some of the foremost American and British researchers. Several prestigious British conferences related to life-extension have been held since.

Source: [Stambler I. A History of Life-Extensionism In The Twentieth Century. 2014](#)

A History of Geroscience in the United Kingdom

The UK, with its high quality of life and internationally renowned healthcare system, is the site of many of the 'problems of success' presented by an aging population.

As explained in BGRF's February report: *Longevity Industry Landscape Overview - Volume 1: The Science of Longevity*, aging is a multifarious phenomenon and its potential technological redresses are diverse. The economic impact of aging makes itself felt as a 'silver tsunami', a burden on national healthcare budgets and pension funds borne increasingly by the UK.

Life expectancy at birth in UK has increased slightly in recent years, to its highest point ever. According to the Office for National Statistics (ONS), life expectancy at birth rose from 79.1 years for males and 82.8 years for females in the period between 2013 and 2015, to 79.2 years for males and 82.9 years for females in the period between 2014 and 2016. This is just 4.2 weeks for males and 2.1 weeks for females to be exact.

This translates into males having a 21% chance of living until at least 90, while the odds for females stand at 32%, a small increase from the previous year. And, for perhaps the first time ever, there are now more 60+ UK citizens than those aged 18 or under.

Basic biological laboratory research of aging seems to have developed quite late in UK. It was not until the Russian-born Vladimir Korenchevsky (1880-1959) organized the British Society for Research on Aging in 1939 and, with the grant of £3,000 from Lord Nuffield established in 1944 the Gerontological Research Unit in Oxford, that British aging research became institutionalized.

Sources: National life tables UK: 2014 to 2016 (September 27, 2017)

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/bulletins/nationallifetablesunitedkingdom/2014to2016>

An overview of lifestyles and wider characteristics linked to Healthy Life Expectancy in England: June 2017

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/articles/healthrelatedlifestylesandwidercharacteristicsofpeoplelivingineastwiththehighestorlowesthealthylife/june2017>

Life Expectancy in UK In 2017 Is Higher Than Ever - But Scotland Is Falling Behind; Jasmin Gray (September 27, 2017)

http://www.huffingtonpost.co.uk/entry/life-expectancy-uk_uk_59ca2b4ee4b01cc57ff533f2

British longevity research: practice, theory and programs

http://www.longevityhistory.com/book/indexb.html#_Toc328320052

A History of Geroscience in the United Kingdom

DEEP KNOWLEDGE VENTURES INVESTMENT FUND

UNIVERSITY OF OXFORD

Biogerontology Research Foundation
Prevent. Restore. Prolong.

Martin Wood Lecture Theatre,
20 Parks Rd,
Oxford
OX1 3PU
15 September, 16:30 to 19:30

21st Century Medicine Forum:

BIG
DATA
SCIENCE IN
MEDICINE

Aubrey de Grey, SENS Research Foundation
Avi Roy, Oxford University Scientific Society
Geoffrey Furlonger, Aging Analytics Agency
Dmitry Kaminskiy, Deep Knowledge Ventures
Joao Pedro De Magalhaes, University of Liverpool
Alex Zhavoronkov, InSilico Medicine
Dr. Gordon Sanghera, Oxford Nanopore

bdscongress.org

In 2014 the Biogerontology Research Foundation, Deep Knowledge Ventures and the Oxford University Scientific Society co-hosted two conferences on the subject of advances in longevity research at the First Big Data Science in Medicine Conference, and on convergence of AI research, geroscience and the leading practical applications of preventive medicine at the Second Big Data Science in Medicine Conference. These event brought together leading lights from artificial intelligence, biomedical science and regenerative medicine for an evening of talks and discussion in Oxford with the ambition of accelerating research on ageing. Speakers at these conferences included Alex Zhavoronkov (Biogerontology Research Foundation and InSilico Medicine), Aubrey de Grey (SENS Research Foundation), João Pedro de Magalhães (University of Liverpool), Riva-Melissa Tez (Project X), Dmitry Kaminskiy (Deep Knowledge Ventures and the Biogerontology Research Foundation), Avi Roy (OUSS, SynOx, BITM and OXTET) and Geoffrey Furlonger (Aging Analytics Agency).

A History of Geroscience in the United Kingdom

OXFORD BIOTECH
Biogerontology Research Foundation
Prevent. Restore. Preserve.
UNIVERSITY OF OXFORD
DEEP KNOWLEDGE VENTURES INVESTMENT FUND

The Second 2014 Symposium
Big Data Science in Medicine
Accelerating Preventive Medicine

8 December, 1:00pm–7:00pm
Saïd Business School, University of Oxford

Richard Barker CASMI, Oxford & UCL
Olga Kovalchuk University of Lethbridge
Thomas Wilckens InnVentis
Alex Zhavaronkov BGRF & InSilico Medicine
Anders Sandberg Future of Humanity Institute
Gitte Pederson Genomic Expression Inc
Maneesh Juneja Health 2.0 and MJ Analytics
Dmitry Kaminskiy Deep Knowledge Ventures

Register at: bit.ly/oxfordmed
bigdatamed.org

The aim of these two landmark conferences was to galvanize progress in the convergence of longevity research, AI and preventive medicine. While the synergetic convergence of these three spheres is well-recognized today, it was much less so in 2014, and it is possible that these conferences made an impact in solidifying this trend in the eyes of the larger scientific community.

Additionally, these conferences were an effort to engage the best science hubs in the UK area, including Oxford University, to recognize the importance of ageing research and the extension of healthy longevity. This was further elaborated upon through an ongoing partnership formed in 2017 between the Oxford University Scientific Society and the Biogerontology Research Foundation, including joint work on analytical reports and the launch of a monthly longevity podcast.

Today, universities like Oxford and Cambridge conduct dedicated aging research, showing that the most elite academic institutions in the UK are indeed taking the topic of longevity seriously.

A History of Geroscience in the United Kingdom

The term 'geroscience' was coined by a Scot, Gordon J. Lithgow, now at the Buck Institute for Research on Aging, to describe research aimed at understanding the mechanisms of biological aging, in particular genetic, epigenetic, and environmental features that determine individual rates of aging. A further goal of geroscience is to use this knowledge to develop interventions that can slow or delay aging and thereby increase healthspan, the period of life spent in good health free from chronic disease and disability.

Slowing aging is predicted to be more effective at improving both the quality and length of life compared to treating or curing any individual disease. Importantly, these extra years are relatively healthy, due to the fact that slowing biological aging would also slow the onset and progression of all age-associated disorders. If realized, this "longevity dividend" from targeting biological aging is expected to yield significant economic and social benefits for societies that are currently experiencing major demographic shifts toward increasing numbers of elderly individuals

By the early 21st century the United Kingdom had emerged as a hub of hubs for research in all the relevant areas. The UK is, for example, now peppered with regenerative medicine centres such as **Keele University**, the site of one of regenerative medicine's first ever the border crossings into age-related ill-health, with their work on repairing osteoarthritic knee joints. Edinburgh, one of the cradles of modern medicine, now supports the **MRC Centre for Regenerative Medicine** whose focus includes the aging immune system.

The **UK Regenerative Medicine Platform (UKRMP)** is a £25M initiative that is addressing the key translational challenges of regenerative medicine. And, of course, biotechnology has been a speciality of the **University of Cambridge** for many decades, particularly their School of Clinical Medicine, active in research covering many of the age-related diseases such as cancer, cardiovascular disease and diabetes. Its preventive biotech arms also cover genetics, immunity, transplants, stem cells and regenerative medicine.

A History of Geroscience in the United Kingdom

As the original epicentre of the First Industrial Revolution, the UK looks set to become the epicentre of the Fourth, with implications for geroscience.

Since 2002, the SENS project (Strategies for Engineered Negligible Senescence) has been led by Dr. Aubrey David Nicholas Jasper de Grey of Cambridge. Up-to-date, this has been perhaps the most ambitious life-extensionist endeavor in UK, perhaps in the world.

The SENS project synthesizes various approaches toward “curing aging”: biological replacements, maintaining homeostasis, repairing molecular damage by genetic engineering, eliminating metabolic waste products by enzymatic catalysis and other methods.

The UK is also among the most FinTech-ready of the world’s large parliamentary democracies. The only current obstacle to the creation of a FinTech bank for the elderly (**AgeTech Bank**) is the lack of a specific solution tailored to their needs. However, given the continuing rate of progress in the IT sector, we expect one to emerge in the next several years. The UK is well-positioned in this regard with one of world's fastest advancing IT sectors. Barclays Bank for instance now uses voice recognition to help customers who have trouble with passwords.

The UK has also produced many of the world’s leading geroscientists, from Gordon Lithgow (the father of the term ‘geroscience’) to Aubrey de Grey, father of rejuvenation biotechnology - the practice of applying regenerative medicine to aging.

Other FinTech solutions for the elderly focus on mobile technology: the devices currently found on the market aren’t friendly to elderly populations. A revolution in Agetech is therefore very dependent on the availability of mobile devices that are easy to use for older people. Only then will banks unlock mobile banking for that demographic.

A History of Geroscience in the United Kingdom



The top 10 countries harnessing information technology

Networked Readiness Index 2016

Global rank*

Singapore	1
Finland	2
Sweden	3
Norway	4
United States	5
Netherlands	6
Switzerland	7
United Kingdom	8
Luxembourg	9
Japan	10

Source: World Economic Forum 2016

*2016 rank out of 139 economies.

The index measures how economies use the opportunities offered by information and communications technologies for increased competitiveness and well-being.

In 2-3 years, the contenders for the most longevity-friendly nation will become clear. They will be those that rose to the challenge of creating the best environments for the convergence of several megatrends impacting the Longevity industry. Creating the most deregulated environment possible to attract all the necessary companies is one way to approach this challenge, but the political systems of many nations do not favour this move.

Some of the more technocratic countries like Singapore and Switzerland for instance, are creating specialised 'sandboxes' - i.e. specific environments - for attracting fintech companies. Less flexible, and more political countries, such the US and China, will be pioneering the technology themselves. It will be left to technocratic countries with smaller populations, such as Singapore, Hong Kong and Switzerland, to develop the necessary frameworks.

In so doing these countries will develop a reputation for being technologically super progressive. The same features that make them leaders in fintech could also make them leaders in longevity.

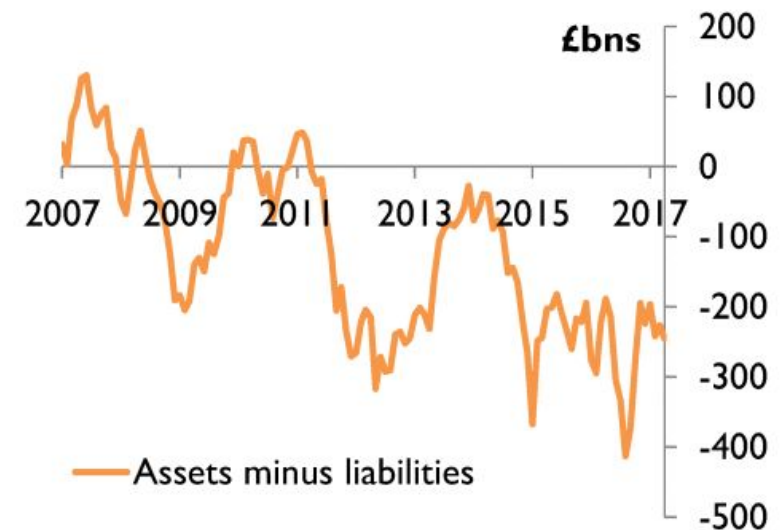
The UK, Japan, and South Korea will be partial exceptions to this rule. Their larger populations and highly developed political systems make them appear inflexible, which obscures their potential to emerge as longevity leaders in 5 to 10 years time.

"AI may be the thing that saves the NHS" ~Sir John Bell

A History of Geroscience in the United Kingdom

In the UK, those who are able to afford saving for their old age have a choice: to try to support themselves through their savings, or default to state help. Some of them are approaching retirement, and are on the borderline of qualifying for extra benefits provided by the State; these individuals worry that having money saved up that isn't sufficient to support them for the duration of their retirement will actually disqualify them from many concessions such as Council Tax, and therefore make them worse off in the end.

In the UK the Government pension fund is pre-defined and underfunded so current **tax payers** pay the bill. As a result, the Government provides tax-breaks to companies to encourage corporate pension funds, which are backed by the company that created it (often in Trust form to achieve the tax benefits) - this means even if the fund is currently in deficit, the **company will need to fund this deficit** as long as the company survives. This means companies will ultimately go under when they can't meet the bill to fund their fund's pension deficits.



Some countries provide additional protection to members of such pension funds with failed companies (e.g. Pension Protection Fund or PPF in the UK) - even then this will often mean **reduced benefits**.

Former UK Prime Minister David Cameron attempted to encourage insurers to offer people products to help them buffer the risk of spending too much on long term care in their future, however this did not materialise as insurance companies were too cautious to take the plunge. The plan was for people to have this option for up to the £72,000 cap, past which the Government would take over to cover the costs of elderly care.

A History of Geroscience in the United Kingdom

International Longevity Centre - UK

In 2004, the UK established the **International Longevity Centre (ILC)** in affiliation with **UCL (University college London)** to address the coming tide of demographic change is set to impact both the Government and society.

The **ILC-UK** is part of the global ILC and operates as a think tank and registered non-profit. It organises the **Future of Ageing** yearly conference series and liaises with politicians and key people both in London and Brussels. Its CEO is Baroness Sally Greengross OBE.

ILC-UK also publishes yearly reports on statistics pertaining to demographic change and analysis. The latest (2018) articles cover the illusion of a gap between **social services** and **health care**, and the importance of coming up with more creative solutions to the challenge of an increasing number of older people who want to maintain their independent lifestyle, while inevitably requiring some form of special care during their retirement.

One suggested solution was **retirement villages** designed with these people in mind. These would serve their everyday needs according to their preferred living arrangements, while providing the health care services routinely required by this specific demographic.

This would be much more efficient than simply handing them over to the overstretched NHS multiple times over the course of their retirement.

A History of Geroscience in the United Kingdom

International Longevity Centre - UK

express.co.uk

Retirement village concept

Developers have already begun work on retirement villages as a result of the accelerating ageing population and stresses on existing healthcare infrastructure.

Of course, this would still require many more people working in these social care services, and based on current stats, there would be a shortage of 750,000 workers by 2037.



Source: http://www.ilcuk.org.uk/index.php/key_facts

A History of Geroscience in the United Kingdom

In early 2017, the Biogerontology Research Foundation embarked on a year-long mission to summarise in a series of documents the various emerging technologies and industries which could be brought to bear on aging, healthy longevity, and everything in between, in a joint project between **The Global Longevity Consortium**, consisting of the **Biogerontology Research Foundation**, **Deep Knowledge Life Sciences**, **Aging Analytics Agency** and Longevity.International platform.

Their shared hope is that they will come to be used as an encyclopaedic resource and reference tool for the emerging longevity industry, and serve as a foundation for the first global frameworks for the industry as it grows rapidly as anticipated in coming years.

One of the conclusions of the report is that the longevity industry is emerging behemoth, but remains relatively fragmented, lacking a sufficient degree of inter-organizational collaboration and industry-academic partnerships. As these reports have been spearheaded by BGRF, the UK's oldest biomedical charity focused on healthspan extension, they are being made freely available to the public online.

Sources:

Longevity industry systematized for first time (FEBRUARY 2, 2018)

<http://bg-rf.org.uk/press/longevity-industry-systematized-for-first-time>

Matt Kaerberlein,* Kate E. Creevy, and Daniel E. L. Promislow, **The Dog Aging Project: Translational Geroscience in Companion Animals** (May 3,2016)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4936929/>

http://lir.website/pdf/Infographic_Summary_Longevity_Industry_Report.pdf

A History of Geroscience in the United Kingdom

Longevity Science Panel

The **Longevity Science Panel** is a group of influencers and scientists focused on monitoring UK longevity demographics, generating discussion and shaping view around this topic.

It is headed by Dame Karen Dunnell DCB (formerly National Statistician and Chief Executive of the Office for National Statistics) and includes Professor Sir Colin Blakemore (former Chief Executive of the Medical Research Council) and Professor Sir John Pattison (formerly Director of Research and Development at the Department of Health in England).

The panel has produced various documents such as “**What is ageing? Can we delay it?**” (2014) which interviewed 8 top biogerontologists about the state of the science, potential treatment in the future and the biology of ageing. The scientists interviewed were:

Professor Richard Faragher

Professor David Gems

Professor Tom Kirkwood

Professor Janet Lord

João Pedro De Magalhaes

Professor John Mathers

Professor Dame Linda Partridge

Professor Eline Slagboom

PDF: http://www.longevitypanel.co.uk/_files/What-is-ageing-can-we-delay-it.pdf

Website: <http://www.longevitypanel.co.uk/>

Chapter III

Current State of Longevity Industry in UK

The State of Geroscience in UK Today: Geroscience Research Landscape 2017

The purpose of regenerative medicine is not to extend the period of time in which people live in a sick and disabled state, but to increase the period of time that people live in good health by delaying and even preventing the occurrence of age-related disease. Biomedical research has achieved a 30% increase in lifespan of mice, and much more in non-mammalian model organisms by various pharmacological, environmental and genetic interventions.



Mortality rates in the oldest age groups have traditionally reduced over time due to a combination of factors including the improvements in mortality

from circulatory diseases, driven partly by changing smoking habits, the diagnosis and treatment of cancers, and medical and technological advances in the treatment of many other illnesses and diseases.

According to today's statistics, men aged 65 in UK can now expect to live an additional 18.5 years, giving them a life expectancy of 83.5. Women aged 65 are predicted to live another 20.9 years, taking them to almost 86 years of age. We are on the verge of a paradigm shift in how we treat the diseases of aging. The first medicines to make us live longer and healthier lives already exist, and massive investments are catalyzing the creation of many more.

Sources:

National life tables UK: 2014 to 2016 (September 27, 2017)

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/bulletins/nationallifetablesunitedkingdom/2014to2016>

An overview of lifestyles and wider characteristics linked to Healthy Life Expectancy in England: June 2017

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/articles/healthrelatedlifestylesandwidercharacteristicsofpeoplelivinginareaswiththehighestorlowesthealthylife/june2017>

Life Expectancy in UK In 2017 Is Higher Than Ever - But Scotland Is Falling Behind; Jasmin Gray (September 27, 2017)

http://www.huffingtonpost.co.uk/entry/life-expectancy-uk_uk_59ca2b4ee4b01cc57ff533f2

<http://origin.who.int/mediacentre/factsheets/fs381/en/>

The State of the Longevity Industry in UK: Longevity Industry Landscape 2018

It is time for all members of the geroscience community, not just investors and politicians, to help create a propitious environment for the maturation of the Longevity Industry. With a clear view of the real opportunities and risks ahead, the industry will truly come of age. While the main focus of this series of reports is to analyze the emerging Longevity industry, the reports also delve into the science of longevity, and Volume I is dedicated exclusively to an overview of the history, present and future state of ageing research from a scientific perspective. In recent years, scientists have elucidated the fundamental mechanisms or hallmarks of aging, opening the field of geroscience – the understanding and manipulation of the fundamental biological processes in age-related disease.

Biogerontology Research Foundation UK executives and trustees Dmitry Kaminskiy and Alex Zhavoronkov attended panel discussions at the Aging Societies conference 2016, organized by The Economist, in London, United Kingdom on November 29-30th 2016. The Aging Societies 2016 conference and related upcoming Business of Longevity conference in San Francisco on December 7th signalled an increasing interest in longevity science among investors and economists. The fact that top-tier business publications now regularly hold conferences on the subject of the Longevity Industry is perhaps one of the strongest indicators of its strength and viability today.

Today the Longevity Industry is recognised as a real, viable industry with significant interest from investors and key business opinion leaders. This was not the case a mere three years ago. From 2014-2016, it was not yet recognized as a serious industry with potential for actual ROI or development, even by dedicated supporters of Longevity. Many people including scientists and advocates were pessimistic about the state of the industry, and estimated that it would not achieve real progress and development until the early 2020s. Kaminskiy, however, made the prediction in 2014 that a major boom in the longevity Industry would occur in 2017, which was somewhat controversial at the time, but which has nonetheless proven to be correct. Indeed, today we are experiencing a dynamic of progress in the Longevity Industry that outpaces even his bold prediction at that time.

Sources:

Global Trends - The Rising Longevity Industry (NOVEMBER 2016)

<http://www.bg-rf.org.uk/press/global-trends-the-rising-longevity-industry>

Personalizing the National Health Service

NHS England recently announced a strategy for driving the delivery of increasingly personalized medicine, defined in the corresponding strategy paper as “a move away from a ‘one size fits all’ approach to the treatment and care of patients with a particular condition, to one which uses emergent approaches in areas such as diagnostic tests, functional genomic technologies, molecular pathway, data analytics and real-time monitoring of conditions to better manage patients’ health and to target therapies to achieve the best outcomes in the management of a patient’s disease or predisposition to disease”.

The detailed strategy has yet to be revealed, but it has been proposed that a new NHS Personalized Medicine service will be built on four principles: better prediction and prevention of disease; more precise diagnosis of disease; more targeted or personalized treatments for disease; and a more participatory role for patients – a positive development in line with political moves towards more patient-centred models of care.

Genomic data typifies big data, being high in both volume and complexity, and requiring innovative computing solutions for storage, processing and analysis. Combining genomic information with other clinical data (from family history and disease symptoms to the results of different predictive or diagnostic tests and medical investigations) yields a veritable treasure trove – for health systems prepared to invest in the infrastructure, expertise and systemic changes needed to put this knowledge to practical use.

For example, better understanding of an individual’s genome could help health professionals to refine their estimates of disease risk, or choices of treatments, to be more accurate and effective. The potential cost savings from avoiding the use of drugs that will be ineffective or cause harmful (adverse) reactions alone could be significant. Personalized medicine has more to offer, however, especially in allowing highly accurate genomic characterization of tumours that lets doctors select treatments that specifically target key weaknesses of cancer cells; this maximizes efficacy and can also reduce unpleasant side effects for patients.

Sources:

Philippa Brice. **The UK: your partner for genomics and personalised medicine**

<https://www.gov.uk/government/publications/the-uk-your-partner-for-genomics-and-personalised-medicine>

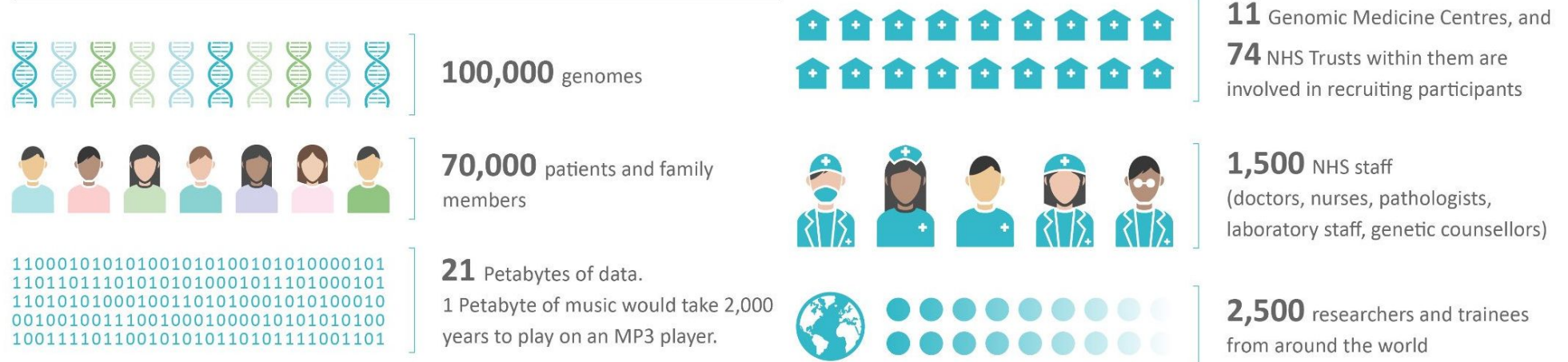
Building on the 100,000 Genomes Project

One crucial element of the new NHS Personalized Medicine strategy is the plan to build upon the groundbreaking 100,000 Genomes Project. This aims not only to sequence 100,000 genomes from NHS patients and their families – this can be necessary for the identification of rare genetic causes of disease – but also to embed genome sequencing services into everyday NHS practice.

The first steps have already been taken in the creation of NHS Genomic Medicine Centres throughout England, and in plans to reconfigure provision of genomics services to a new model that will use the new high-throughput Genomics England Sequencing Centre near Cambridge created for the 100,000 Genomes Project and a network of Genomics Central Laboratory Hubs (centres of expertise in diagnostic molecular, cytogenetic and genomic analysis aligned with Biomedical Research Centres and Academic Health Science Centres) along with smaller Genomics Local Laboratory Hubs to provide common forms of diagnostic testing, as well as interpreting and reporting to doctors the results of more complex testing.

The aim is to create an efficient, integrated and comprehensive service that can combine multiple forms of scientific and clinical data to inform the practice of personalized medicine.

The 100,000 Genomes Project in numbers



Sources: Philippa Brice. **The UK: your partner for genomics and personalised medicine**
<https://www.gov.uk/government/publications/the-uk-your-partner-for-genomics-and-personalised-medicine>

Building on 100,000 Genomes Project

The 100,000 Genomes Project, led by Genomics England, is sequencing the genomes of 100,000 NHS patients and combining this with NHS data. This groundbreaking work highlights the world-leading position the UK holds in genomics. We are already at an advanced stage of a systematic long-term plan for integrating genomic and personalised medicine into the day-to-day delivery of healthcare.

The NHS will be the world's first healthcare system to launch a genomics medicine service.

International interest in UK's approach to genomics and personalised medicine is growing. There is huge potential for this expertise to be shared with governments, healthcare providers and commercial companies.

This prospectus explains what genomics and personalised medicine are, how they can be applied, and why the UK is at the forefront of this field. The UK is investing heavily to set up the necessary infrastructure and levels of service integration to deliver population wide benefits from genomics.

We are in the process of creating an unparalleled end-to-end service, integrating every step of the genomic pathway to maximise patient benefit.

You can draw on this knowledge and experience to invest in the facilities and services needed to optimise these benefits.

Genomics is complex field, but finding suitable commercial partners in UK need not be. The simplest way to access this expertise is through Healthcare UK, UK government's specialists in international healthcare partnership working.

This was published originally by UK Trade and Investment which has since moved to the Department for International Trade (DIT).

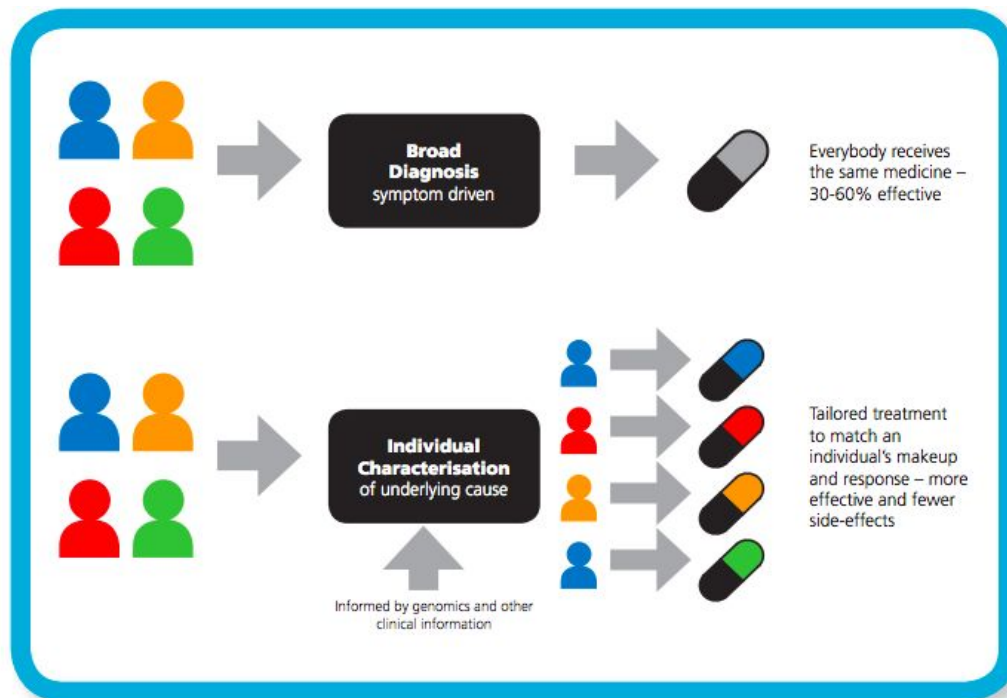
Sources:

The UK: your partner for genomics and personalised medicine

<https://www.gov.uk/government/publications/the-uk-your-partner-for-genomics-and-personalised-medicine>

Future of Personalized Medicine

Traditionally, medicine has been built around clinical teams specialising in a particular organ system working back from a patient's symptoms to arrive at a diagnosis. Personalized medicine recognises that complex diseases should no longer be considered as a single entity. One disease may have many different forms, or 'subtypes', resulting from the complex interaction of our biological make-up and the diverse pathological and physiological processes in our bodies. These will not only vary between patients who have the same disease but also within an individual patient as they get older and their body changes. As we integrate and analyze genomic and other data, we can find common factors and causes of variation, resulting in the discovery of new pathways of disease, changing how diseases are treated. It enables us to recognise that the same underlying change in our DNA or genome can lead to problems in very different parts of the body, which would not have been previously identified with a more traditional care approach.



The current blockbuster approach to drug development assumes that all patients with a particular condition respond similarly to a given drug. All patients with the same condition receive the same first line treatment even though it may be only 30 to 60% effective. Personalized medicine will provide opportunities to improve how we treat disease. Based on comprehensive genomic and diagnostic characterisation, different subtypes of patients with a given condition can be identified, and treatment can be tailored to the underlying cause, as illustrated in the figure.

Sources:

<https://www.england.nhs.uk/wp-content/uploads/2016/09/improving-outcomes-personalised-medicine.pdf>

Future of Personalized Medicine in UK

The UK is by no means alone in its ambitions to reform healthcare to capitalize upon personalized medicine; indeed, it has provoked a proliferation of similar national schemes, notably in the USA where the Precision Medicine Initiative launched last year (and informally dubbed the ‘Million Genomes Project’) aims to recruit a cohort of a million US citizens for research to underpin the delivery of more individualized care.

There are many other efforts to match or exceed the scope of the 100,000 Genomes Project. However, the UK has not only something of a head start, but also a potential advantage in the National Health Service – a gilt edged opportunity to create a seamlessly integrated system and resource for both on-going genomic research and improved clinical care.

So important is the potential of personalized medicine for the UK that a new All-Party Parliamentary Group (APPG) on Personalized Medicine has just formed. Chaired by Jo Churchill, MP, and with a secretariat provided by health policy think-tank the PHG Foundation (formerly Public Health Genetics Unit), the crossbench group of MPs and peers will examine new opportunities offered by genomics, life sciences and digital health technologies for better patient care in the NHS, helping to ensure that the UK makes the most of investment in these areas to maximize the health benefits for the UK population.

Precisely what the personalized medicine of the future will resemble cannot be reliably predicted, but the developments we are already seeing could very well herald the start of truly transformational changes for healthcare.

There are mighty challenges ahead for both science and medicine as they set out to push the boundaries of knowledge, create new solutions to handling big data effectively, and test new paradigms of care, especially in incorporating new areas such as mobile health (mhealth) that could further personalize medical care. No wonder NHS England has referred to the shift towards personalized medicine as “one of the most fundamental changes in NHS history”.

Sources:

Philippa Brice. The UK: your partner for genomics and personalised medicine

<https://www.gov.uk/government/publications/the-uk-your-partner-for-genomics-and-personalised-medicine>

Future of Personalized Medicine in UK

Technological developments across a range of areas are coming together to provide the necessary ingredients to spread a personalised medicine approach across healthcare. Genomic technologies are an increasingly large part of the evolution of modern medicine and our understanding of genomic implications is growing.

The speed and repertoire of diagnostics more generally is increasing. And informatics advances are making discoveries and connections at an enormous pace. This is the dawn of a new era in medicine that will need to move and evolve at the scale and pace of scientific and technological advances if real improvements for patients and the public are going to be made. The figure sets out the changes we might see in the coming decade. Clinical advice and leadership is vital.

We have been working with the Academy of Medical Sciences to develop exemplar clinical pathways in key priority areas, such as diabetes and cardiovascular disease, where there is a real opportunity to improve outcomes for patients and our population. We will continue to work with the Academy as well as with the Academy of Medical Royal Colleges, its constituent colleges and other professional groups, to build the evidence base and clinical understanding.

Sources:

<https://www.england.nhs.uk/wp-content/uploads/2016/09/improving-outcomes-personalised-medicine.pdf>

Medicine is changing



Today:

- 'One-size-fits-all' treatment based on symptoms
- Services and professions organised according to organ/speciality
- Limited use of genomic and molecular markers
- Diagnostic and clinical data not linked

By 2020:

- Whole genome sequencing for specific conditions
- Improved diagnosis of rare conditions and better understanding of cancer
- Comprehensive, linked diagnostic data coupled with effective informatics analysis to give a full picture of patients

By 2025:

- New taxonomy of medicine based on underlying cause and personal response
- Integrated clinical services taking a 'whole body' approach
- Tailored, optimised and more effective therapies for better outcomes
- New NHS relationships with academia, industry, patients & patient groups

Future of Personalized Medicine in UK

NHS England has established a national network of 13 Genomic Medicine Centres delivering genomic services across the country. Each of the Genomic Medicine Centres is working in partnership with local providers, across populations of 3 to 5 million, to enable:

- patients and family members, with their informed consent, to participate in the project;
- greater patient and public involvement in the dialogue about genomic medicine;
- clinical and diagnostic data to be captured and collated in new datasets that inform the overall interpretation of the genome sequence and its expression;
- new tracking, collection and handling processes for samples, including the introduction of fresh frozen cancer samples for optimal DNA extraction;
- the creation of genomic medicine multi-disciplinary teams for rare diseases and cancer to help analyse what their genetic information means for that patient; and
- shared risk and decision making through new governance and partnership arrangements across the NHS, with active support from the Academic Health Science Networks.

The Project is coordinated by Genomics England, who have procured whole genome sequencing services and analytical providers. They have created a unique database that enables approved researchers, clinicians, and industry to work on de-identified data to enhance clinical interpretation and answer arising research questions.

Knowledge from the Project will enable clinical teams to better characterise an individual's condition, learn from others with the same disease and connect seemingly different conditions with the same underlying genetic cause. Through the project we are laying the foundations for a personalised medicine approach across the NHS. This is not light years away; it is already changing people's lives.

Sources:

<https://www.england.nhs.uk/wp-content/uploads/2016/09/improving-outcomes-personalised-medicine.pdf>

Future of Personalized Medicine in UK

In an article entitled UK report urges action to combat AI bias, Tina Woods of Collider Health writes:

“The AI Select Committee Report published in April 2017 argues that data held by the NHS could be considered a unique source of value for the nation and that when shared should be done in a manner which allows for that value to be recouped. They recommend that a framework for the sharing of NHS data should be prepared and published by the end of 2018 by NHS England (specifically NHS Digital) and the National Data Guardian for Health and Care, with the support of the Information Commissioner’s Office (ICO) and the clinicians and NHS Trusts which already have experience of such arrangements (such as the Royal Free London and Moorfields Eye Hospital NHS Foundation Trusts), as well as the Caldicott Guardians. This framework should set out clearly the considerations needed when sharing patient data in an appropriately anonymised form, the precautions needed when doing so, and an awareness of the value of that data and how it is used. It must also take account of the need to ensure SME access to NHS data, and ensure that patients are made aware of the use of their data and given the options. The Committee recommends that wherever possible and appropriate, and with regard to its potential commercial value, publicly-held data be made available to AI researchers and developers. Mechanisms for enabling individual data portability, such as the Open Banking initiative, and data sharing concepts such as data trusts, will spur the creation of other innovative and context-appropriate tools, eventually forming a broad spectrum of options between total data openness and total data privacy.”

Sources:

<https://techcrunch.com/2018/04/16/uk-report-urges-action-to-combat-ai-bias/>

Future of Personalized Medicine in UK

In a recent report written for the government from the life sciences sector, entitled "Life sciences: industrial strategy", John Bell notes that:

"It is clear that one of the major challenges with healthcare systems over the next twenty years will be to better manage the healthy ageing of a large part of the population. As we move to a setting where almost 30% of the population will be over the age of 65, a wide range of engineering, digital monitoring and technology-based solutions will be required to maintain mobility, allow people to stay at home, and provide much more effective out-of-hospital care. This is the basis for an entirely new industry that could effectively use the NHS and care systems as test beds for products. A more systematic effort to create commercial products could reduce cost and improve outcomes for this population, be it through digital monitoring of disease or mobility, aids for maintaining a safe environment in the home, engineering solutions for mobility, 'smart homes' devices to enhance functionality in the home environment, or aids for people with musculoskeletal disorders. Therefore, there is a significant commercial opportunity; this is primarily an opportunity for digital and engineering medtech companies and could be embedded in the NHS to provide commercial evaluation capabilities. The Life Sciences Strategy recommends the creation of regional Digital Innovation Hubs (expected to roll out early 2018) that support the use of data for research purposes within the legal framework and meet the strict parameters for sharing data and the security standards set out by the National Data Guardian. These Hubs will create controlled environments for real-world clinical studies, the application of novel clinical trial methodology, and the comprehensive evaluation of new innovations so that patients can benefit from scientific breakthroughs much faster."

Sources:

<https://www.gov.uk/government/publications/life-sciences-industrial-strategy>

The Four 'P's of Personalized Medicine

1. **Prediction** and **prevention** of disease

Using genomic technologies and other diagnostics we will be able to identify people most at risk of disease even before the onset of their symptoms. Earlier detection will open up the prospect of new treatment options and support people to make informed lifestyle choices. This will create the potential to reduce the growing burden of disease, particularly for long term conditions such as cardiovascular diseases, cancer, chronic respiratory diseases and diabetes.

2. More **precise** diagnoses

Currently a diagnosis is made based on tests and investigations of a patient's symptoms. But whilst two patients might share the same symptoms, the cause of them could be different. Knowledge of each individual's complex molecular and cellular processes, informed by other clinical and diagnostic information, will enable us to fully understand the abnormal function and determine the true cause of the symptoms. This ability to diagnose more precisely can be optimised when coupled with new and improved technologies such as those that provide rapid and real time results and those that can be used at the point of care. Patients and health professionals can make shared decisions about medicines and adjust dosing in real time.

Sources:

<https://www.england.nhs.uk/wp-content/uploads/2016/09/improving-outcomes-personalised-medicine.pdf>

The Four 'P's of Personalised Medicine

3. Targeted and **personalised** interventions

Personalised medicine offers the opportunity to move away from 'trial-and-error' prescribing to optimal therapy first time round. Currently key pharmaceutical interventions are effective in only 30-60% of patients due to differences in the way an individual responds to and metabolises medicines. Knowledge of the genetic variants responsible for individual drug response can be used to create an individual's 'pharmacogenomic' profile, identifying optimal treatment. We are already beginning to see the development of simple point of care tests, based on genomic knowledge, which enable clinicians in a wide variety of settings to identify the best therapy. This marks the beginning of an end to the frustrating and costly practice of 'trial-and-error' prescribing. The development and regulatory approval of so called companion diagnostics - a diagnostic test, device or imaging tool used as a companion to a therapeutic drug - is already making this a reality.

4. A more **participatory** role for patients

The ability for a clinician to discuss with their patients information about individual genomic characteristics, lifestyle and environmental factors, and interpret personal data from wearable technology will drive a new type of conversation. They can consider lifestyle changes, and when treatments might not be necessary. It might also lead patients to consider preventative measures when there is high likelihood of a disease developing. This is a new era of medicine and it requires new knowledge amongst professionals, patients and the public to have confidence in using the information available to them.

Sources:

<https://www.england.nhs.uk/wp-content/uploads/2016/09/improving-outcomes-personalised-medicine.pdf>

Preventive Medicine in UK

Preventive medicine in UK falls under the remit of the Department of Health, which has a number of umbrella institutions fulfilling this mandate. Its primary responsibilities include 'health protection', 'health improvement,' and 'health inequality' issues. These domains of preventive medicine broadly fall under the remit of Public Health, and indeed, Acheson described Public Health as, "the science and art of promoting health, preventing disease, and prolonging life through the organized efforts of society". Preventive public health medicine seeks to set out implementation programs to reduce the burden of disease. It relies on a finite resource of public funding and justifies its expenses through a process of health impact assessment.

It is acknowledged that the Government cannot provide for every possible health intervention and the basis of its monetary allocation is on a utilitarian distributive principle of, '*maximum good for maximum people*'. Indeed, the *Policy Appraisal and Health 1995*, *Saving Lives 1999*, and *Choosing Health 2004* document and elaborate the mandate of Health Impact Assessment as a viable and justified appraisal tool influencing health and more specifically preventative medicine expenditure. This health impact assessment policy has wide ranging effects on all resource aspects of our healthcare and although there is controversy surrounding the implications of these economic appraisal tools, measuring the impact of preventive medicine in the older person is germane for future policy development and allocation of resources.

Sources:

Puneet Kakar. Preventive Medicine in the Older Patient: A United Kingdom Perspective. Int J Prev Med. 2012 Jun; 3(6): 379–385.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3389434/>

Industrial Strategy: The Grand Challenges

The Industrial Strategy sets out Grand Challenges to put the UK at the forefront of the industries of the future, ensuring that the UK takes advantage of major global changes, improving people's lives and the country's productivity. The first 4 Grand Challenges are focused on the global trends which will transform our future:



- growing the Artificial Intelligence and data driven economy
- clean growth
- future of mobility
- **ageing society**



Ageing society: The UK population is ageing, as it is across the industrialised world. The prospect of longer lives will require people to plan their careers and retirement differently. Ageing populations will create new demands for technologies, products and services, including new care technologies, new housing models and innovative savings products for retirement. The state has an obligation to help older citizens lead independent, fulfilled lives, continuing to contribute to society, must be created an economy which works for everyone, regardless of age.

In support of the Grand Challenge on data and artificial intelligence (AI), a new Centre for Data Ethics and Innovation is being established to enable and ensure safe, ethical and ground-breaking innovation in AI and data-driven technologies. The centre will work with government, regulators and industry, as well as across sectors and applications, to ensure that the UK's regulatory regime fully supports – and removes barriers to – the ethical and innovative use of data and AI. This will lay the foundations for AI adoption which could benefit households across the UK by up to £2,300 per year by 2030, and ensure that the positive impact of these technologies on the UK economy and society can be maximised.

Source: <https://www.gov.uk/government/publications/industrial-strategy-the-grand-challenges/industrial-strategy-the-grand-challenges>;
<https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future>

Ministers Announce £300 Million Research Fund To Help Brits Reach 100

Ministers will inject more than £300 million into researching old age in order to support the ageing population. They say *“we need to ‘revolutionise’ the way people get older – ensuring they remain healthy and independent for longer.”*

The funding will support a research hub looking at dementia as well as a major project looking at the prevention and treatment of disease, involving more than 500,000 patients. Under the plans set out by Mr Greg Clark, a £210 million competitive fund will be established to invest in the development of innovative diagnostic tools, medical products and treatments.



It will include the creation of a series of regional centres across the UK to improve the diagnosis of patients using technologies such as artificial intelligence. A further £98 million will be invested in a healthy ageing programme to develop products and services to help people to live in their homes for longer. In addition, £40 million will go to the UK Dementia Research Institute, in partnership with University College London, to create a hub in which 350 leading scientists will research treatments for the condition.

An estimated 850,000 people in UK are living with the disease.

Care minister Caroline Dinenage added: *“As a society we are living longer – a child born today can expect to live to 100 years – but now we must seize the opportunity to improve the quality of lives lived longer.”*

The state pension age for men and women will rise to 66 by 2020, and Government actuaries believe it will reach 70 in the 2050s and 71 in the 2060s.

Source: <http://www.dailymail.co.uk/health/article-5489127/Ministers-announce-research-fund-help-ten-million-Brits-reach-100.html>

Health and Treatment Optimisation

The CHHP Health optimisation programmes joins the best in medicine and applied physiology to achieve better health and treatment outcomes and sustain the highest possible quality of life.

The team of specialists work intensively, yet flexibly with the patient to rapidly and measurably reach the goals: improving health outcomes, minimising disease risks and ageing processes, optimising physical or cognitive capabilities, or maximising 'effective longevity'.

At CHHP the team delivers 'multidisciplinary care' to ensure the very best opinions and access to the most advanced treatment under one roof.

The internationally recognised team of specialists come from across the medical specialties including: cardiology; respiratory; weight management and metabolism (including diabetes); oncology; orthopaedics; and clinical and nutrition.

The CHHP Executive package is supported by Specialist Physiotherapists, Physiologists, Sports Scientists, Nutritionists and Cardiologists, who will help to identify how executives can improve their overall levels of health and fitness and translate this into their busy lives.

The CHHP Executive package analyses sleep quality, heart health, how the body copes with pressure and travel, along with body composition, to enable corporate executives to understand their health numbers and how to enhance their personal performance and productivity.



Source: <http://www.chhp.com/health-treatment-optimisation>

UK and Israel Collaboration on Aging Process

The UK has launched a new £5m fund to promote scientific collaboration and research between Israel and the UK into the aging process and its effect on human health. The new fund, called Britain Israel Research and Academic Exchange (BIRAX) Ageing, will also promote research that into aging-related diseases such as Parkinson's, Alzheimer's, heart disease, multiple sclerosis and diabetes, which afflict millions of people worldwide. The initiative creates a community of British and Israeli researchers and academics, fosters new ties between universities and supports scientific research into urgent global healthcare issues.



The call will focus on two broad themes: research into the impact of aging processes on human health and studies that use precision medicine and big data to identify biomarkers, algorithms and computational techniques to help prevent the harmful effects associated with aging.

in UK, 18% of the population is over 65 years of age. Israel's elderly population is expected to reach 14.3% by 2040, and elderly populations worldwide are set to double in the next 30 years.

Focusing on early stage collaboration, the existing BIRAX program has so far brought together more than 1,000 scientists, including PhD and postdoctoral students, from 120 institutions, and resulted in breakthrough research published in 30 leading scientific publications. The program is a joint initiative of the British Council, the UK Science and Innovation network (SIN), the British Embassy in Israel, the Pears Foundation and the United Jewish Israel Appeal.

Source: <https://www.timesofisrael.com/uk-sets-up-5m-fund-for-collaboration-with-israel-on-aging-process/>

Convergence of UK Silver Tsunami and Longevity Science

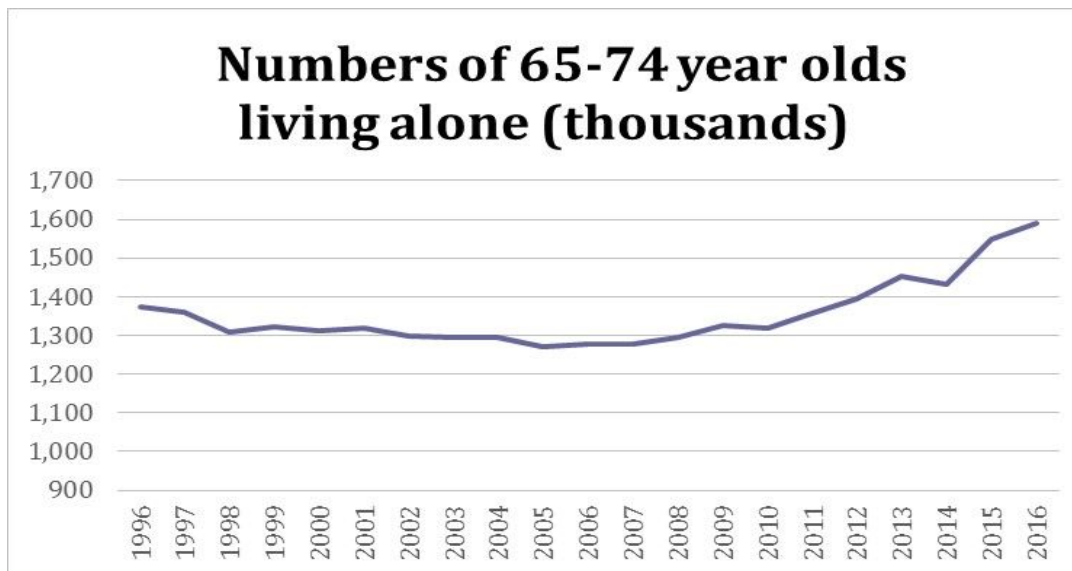
"There is about £2.2bn spent on pathology services in the NHS. You may be able to reduce that by 50%. AI may be the thing that saves the NHS," he said.

The system will save billions of pounds by enabling the diseases to be picked up much earlier.

Taking this example and applying it more generally to a wider array of diseases, the NHS could create significant cost savings by better diagnosing and treating patients with the assistance of machine vision of X-rays, MRIs, cell culture results, epidemiological data crunching, and so forth.

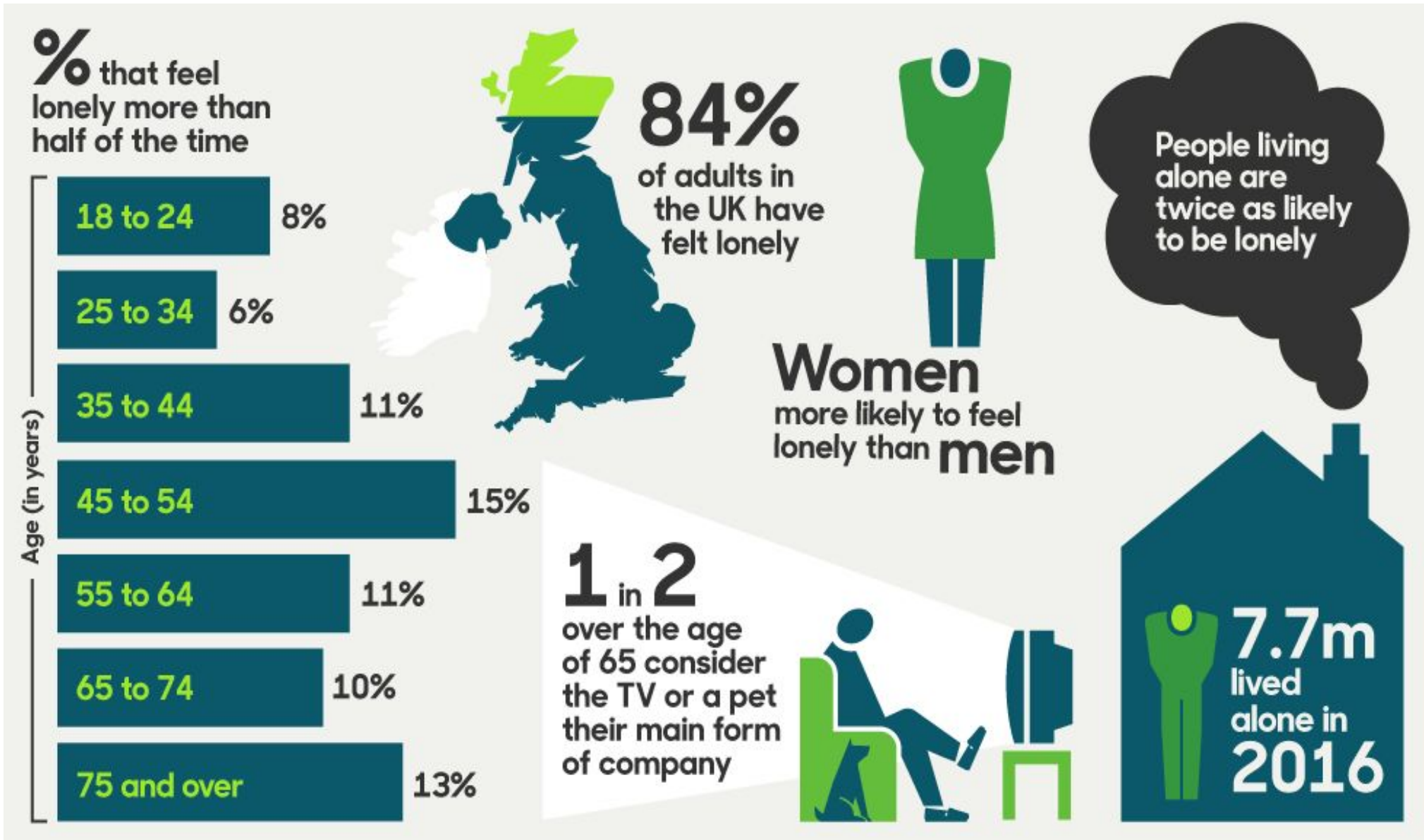
A lot of work is currently done by expensive, error-prone humans that need not be.

Nick Ackland (UK) lost his forearm in an accident and has been testing an advanced bionic arm and hand that is so precise he can use a keyboard



Source: <http://blog.ilcuk.org.uk/2017/08/02/social-crises-housing-isolation-and-an-ageing-population/>





<http://www.bbc.co.uk/guides/ztjj2p3>

So while the UK has some of the problems of ageing at the highest level in terms of loneliness, disease and disability, it also houses the most promising research and development to counteract these issues sooner rather than later.

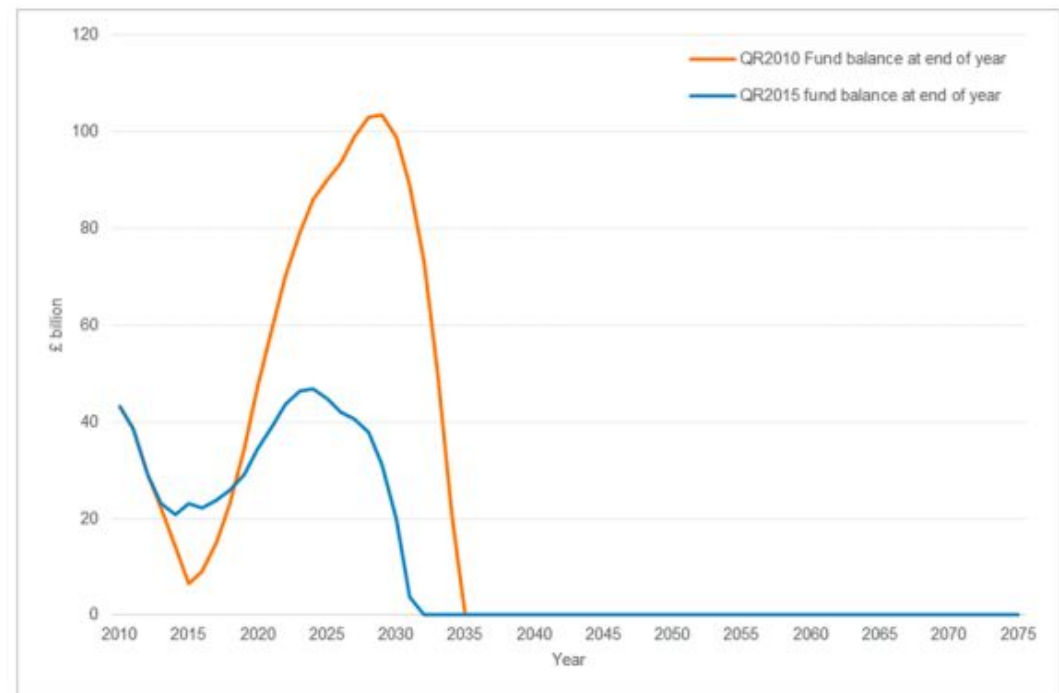
National Insurance Fund

“National insurance contributions made by employers and workers will need to rise by billions of pounds to sustain the state pension, under projections from the government actuary.” states Josephine Cumbo, Pensions Correspondent.

Two reports on NIF published in 2010 and 2015 gave a very unoptimistic predictions about the future if the Fund. As can be seen on the picture, it is predicted that Fund will be a bankrupt by 2035.

The slower projected increase in the Fund largely reflects changes in assumptions relating to earnings growth. Specifically:

- This review assumes lower earnings increases (of around 1% pa) for the three years 2016-17 to 2018-19;
- The period of lower short-term earnings growth is assumed to continue for an additional three years, to 2021-22, for this review;
- This review assumes lower long-term earnings growth (down from 4.45% pa to 4.30% pa).



Source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/653374/QR_2017_report_Oct_2017.pdf
<https://www.ft.com/content/dc16d7b4-f51f-11e7-88f7-5465a6ce1a00>

Innovation Warehouse & the AgeTech & Longevity Hub

Innovation Warehouse was founded in 2010 as a community for digital high-growth start-ups in London.

The idea was brought to life by a group of entrepreneurs and angel investors with significant experience and a proven track record of working with start-ups.

Every day, over 200 entrepreneurs, angels and mentors work together from their Smithfield coworking location.

In 2018, Innovation Warehouse established London's AgeTech & Longevity Hub, providing mentoring and corporate finance services to early-stage technology companies in these fast-developing sectors.

They believe that one of the most important fields of innovation and endeavour is to work to extend healthier lifespans and maintain quality of life for our growing, ageing population. They seek a present where people age better and live longer independently.



**BECOME PART OF OUR
EMERGING AGETECH &
LONGEVITY HUB**

Innovation Warehouse has established London's AgeTech & Longevity Hub, providing mentoring and corporate finance services to early-stage technology companies in these fast-developing sectors. We believe that one of the most important fields of innovation and endeavour is to work to extend healthier lifespans and maintain quality of life for our growing, ageing population.

Innovation Warehouse & the AgeTech & Longevity Hub

Innovation Warehouse's AgeTech & Longevity Hub is a start-up incubator and accelerator focusing on early-stage investment in digital technology companies that target societal ageing as the main problem they wish to confront. Their typical investment size ranges from £150k - £500k.

[ABOUT US](#)[COWORKING AND OFFICES](#)[STARTUP GROWTH](#)[INVESTMENT](#)[LONDON AGETECH & LONGEVITY HUB](#)[EVENTS](#)[INNOVATION NEWS](#)

We want to meet early stage technology companies with commercial propositions addressing the following opportunities:

- Commercial businesses with an ageing component
- The Silver Economy – providing services for the 'wants' of the older demographic
- Supporting independent living – addressing the 'needs' of the older demographic
- Longevity – extending healthy lifespans
- Geroscience

AI, Genomics, IoT, Data, Robotics, FinTech, E-Commerce, Ageless Design, HealthTech, Wearables – all have a part to play.

Through our partnerships with organisations such as [Aging 2.0](#), academic, commercial and medical bodies, as well as our network of active investors we are able to assist early stage businesses breaking into in this new and exciting sector.

Early stage digital technology companies

Typical investment sizes range between £150k – £500k

Speak to us, work here with us, pitch to us...

[APPLY TO PITCH](#)

Charles Alessi's Speech at Aging 2.0

Dr Charles Alessi has recently joined HIMSS as the organisation's first Chief Clinical Officer, bringing a wealth of knowledge and expertise in all aspects of clinical practice. He will also be continuing in his current role as Senior Advisor and Lead for Preventable Dementia with Public Health England, an executive agency sponsored by the UK Government's Department of Health and Social Care, aiming to address health inequalities and improve wellbeing.



Charles Alessi

Aging2.0's Grand Challenges is a new global initiative to drive collaboration around the biggest challenges and opportunities in aging.

The event took place on 14 March, at the London Chapter, where Dr. Charles Alessi provided an "Introduction to Public Health England's Productive Healthy Ageing framework".

Workplace - healthy productive ageing:

- Percentage of people who are 65+ in work now are 10.4% up from 6.6% of the workforce (1992);
- Older people are as productive as younger ones as they have more appreciation of nuance;
- If everyone worked for a year longer, GDP would increase by 1%; People do not yet appreciate that work has benefits other than economic ones, and is generally beneficial for mental health and social wellbeing;
- Increasing pensionable age is essentially sensitive, it will increase healthy life years.
- Using measure of Dependency not Multimorbidity - Care Free Life Years (CFLY) for people with significant multimorbidity (More than 4 LTCs) or those approaching end of life

Source: <https://www.aging2.com/events/details/aging-20-london-presents-london-grand-challenges-launch-event>

Charles Alessi's Speech at Aging 2.0

Metrics to drive Health and Care System:

- Years in Work (YIW) ratios for people in employment (YIW as against expected life work years)
- Using measure of Dependency not Multimorbidity - Care Free Life Years (CFLY) for people with significant multimorbidity (More than 4 LTCs) or those approaching end of life

Work - Further interventions:

- Managing “Transitions” in Employment (British Armed Forces)
- Instituting effective digital personalised health and wellbeing initiatives for staff
 - Promoting mental health and wellbeing (ROI via reduced presenteeism and absenteeism £2.37 per £1 invested over 1 year)
 - Interventions to prevent stress, depression and anxiety (ROI £2.00 per £1.00 over 2 years)
 - Managing food and nutrition making it easier and more convenient to make healthy choices (Zipongo)
 - Managing musculoskeletal healthcare

Charles Alessi's Speech at Aging 2.0

Further interventions to enhance Ageing:

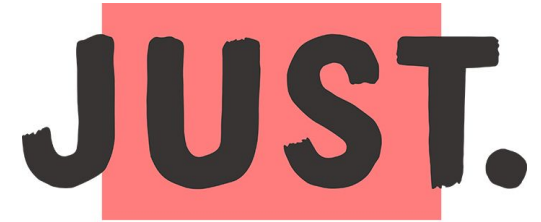
- Managing Social Isolation pays dividends (R.O.I of £1.26 over 5 years on every £1 spent) *Commissioning Effective Interventions 2017 - London School of Economics*
- Promoting Salutogenic approaches (Antonovsky 1946)
- Instituting "Patient Activation" to encourage people to manage their health
- Utilisation

Workplace - healthy productive ageing:

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- Older people are as productive as younger ones as they have more appreciation of nuance
- If everyone worked for a year longer, GDP would increase by 1%
- People do not yet appreciate that work has benefits other than economic ones, and is generally beneficial for mental health and social wellbeing
- Increasing pensionable age is essentially senseless, it will increase healthy life years

Just Group

Just Group plc is a specialist UK financial services group focussing on attractive segments of the UK retirement income market. The Group is a leading and established provider of retirement income products and services to individuals and corporate clients.



Just has a strong social purpose by providing people with advice, guidance, products and services, helping them achieve security, certainty and peace of mind in later life.

Just Group's strategy includes:

1. Grow the markets and broaden the distribution reach
2. Give customers a distinctly 'Just' experience every time
3. Make smart risk choices
4. Focus on strong financial management
5. Diversify their business away from any single business line or market

On 24th May 2018 Just Group has developed a new business - HUB Pension Solutions - to transform the way trustees, pension scheme members and financial advisers implement and participate in scheme transfer exercises.

David Cooper, the chief executive of the HUB companies said:

"We've transformed the way scheme exercises can now be undertaken. HUB Pension Solutions uses digital technology to radically disrupt the way scheme specific information can be interrogated and delivered to pension scheme members and financial advisers in real time at the click of a button."

Sources: <http://www.justgroupplc.co.uk/about-us/company-overview>

<http://www.justgroupplc.co.uk/~media/Files/J/JRMS-IR/news-doc/2018/Just%20Group%20develops%20new%20business%20-%20HUB%20Pension%20Solutions%2024052018.pdf>

Innovating for Ageing

Innovating for Ageing was launched by Just, with the support of the International Longevity Centre, in January 2018. The project aims to identify solutions to the growing problem of vulnerability in later life by bringing together experts, innovators and groups who work to support vulnerable consumers.



**INNOVATING
FOR AGEING**

Its objective is to identify and support the development of products and services that will address the challenges faced by ageing consumers at risk of vulnerability due to physical disability, illness, dementia or financial exclusion.

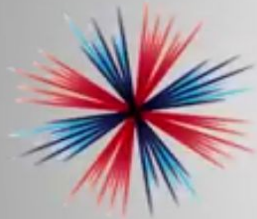
On June 19th 2018 the project will bring together groups with expertise in working with vulnerable people, with experts and innovators who can provide solutions to the problems faced by vulnerable consumers. The world's first vulnerable consumers innovation sprint will help us all better support consumers at risk of vulnerability due to, for example, physical disability, illness, dementia or financial exclusion.

David Sinclair, Director of ILC-UK, said he was keen to talk to individuals and organisations interested in participating in the Innovating for Ageing initiative:

“Our ageing society is a driver for increasing levels of vulnerability – more people with dementia, with sight and hearing loss, and multiple long-term health conditions, for example. This project aims to seek out technological and policy innovations and solutions, with an aim to removing barriers and ultimately rethinking the products and services that are available on the market.”

Sources: <https://www.innovatingforageing.uk/event/19jun18-workshop/>
http://www.ilcuk.org.uk/index.php/news/news_posts/innovating_for_ageing_just_and_ilc_uk_launch_new_initiative_to_develop_crea

Healthy Ageing Industrial Strategy Challenge Fund



**INDUSTRIAL
STRATEGY**

UK Research
and Innovation

We are investing £98 million...

The Healthy Ageing Industrial Strategy Challenge Fund £98 million challenge fund to demonstrate innovation that creates economic value at scale and demonstrates the ability to support "years full of life" which match the gift of the extension of peoples' lives.

As interim Director of the Healthy Ageing Industrial Strategy Challenge Fund, Eric Kihlstrom works across industry, Government, 3rd sector and academia to unlock opportunities that come with demographic changes.

**to help us live better,
for longer.**

Alcohol Consumption Among Elders in UK

As we get older the amount of water within the body decreases, but alcohol stays in the liver longer and is not metabolised efficiently. Drinking even in small amount for those that are in their 30s, 40s, or 50s may quickly impair a senior's judgement and coordination, leading to falls or other serious injuries.

According to "*Alcohol consumption among the over 50s: international comparisons*" written by Lucy Gell, Petra Meier and Elizabeth Goyder: "In England, higher income is associated with excessive and binge drinking (The NHS Information Centre 2010). Despite declines in alcohol consumption with increasing age, many older adults drink at a level that is considered hazardous or harmful to health. For example in England, 19.3% of adults aged 55-64 years, 14.1% of adults aged 65-74 years, and 10.5% of adults aged 75 years and older were considered hazardous or harmful drinkers when assessed using the Alcohol Use Disorders Identification Test (The NHS Information Centre, 2009)".

In an article titled "*Alcohol misuse in the elderly*" by Dr. E. J. Williams and Dr. P. Medcalf in the GM Journal, it is mentioned that "Alcohol misuse is undeniably a cause of significant morbidity and mortality across all age groups in the UK, with more people dying from alcohol related causes in 2004 than from breast cancer, cervical cancer and MRSA combined. The Royal College of Physicians suggesting 60% of elderly people admitted to hospital with common presentations such as confusion, falls, recurrent chest infections and heart failure may have unrecognised alcohol problems. The estimated annual direct financial cost of alcohol harm alone in 2006 was calculated to be £2,7 billion. A 2009 report still suggests that individuals aged 65 years or over were more likely than any other age group to have drunk on every day of the previous week (22% men, 12% women).

Alcohol can damage nearly every part of the body and can cause: anxiety, dementia, depression, hearing voices, confusion. It increases the risk of cancer and cardiovascular disease. Alcohol is a great health hazard even in small quantities, therefore should be implemented policies and improved services for people whose lives are affected by alcohol-related problems.

Sources: <http://eprints.whiterose.ac.uk/82762/8/Alcohol%20consumption%20among%20the%20over%2050s%20-%20international%20comparisons.pdf>
<https://www.gmjjournal.co.uk/media/21688/june2010p251.pdf>

Alcohol Consumption Among Elders in UK

The “Drink wise, age well: alcohol use and the over 50s in the UK” report written by George Holley-Moore and Brian Beach, produced by the International Longevity Centre – UK (ILC-UK) states that old people are drinking more now than in the past, the five most frequently reported reasons are: retirement (40%), bereavement (26%), loss of sense of purpose in life (20%), fewer opportunities to socialise (18%) and a change in financial circumstances (18%).

This issue raises many concerns because the UK’s population is rapidly ageing, with over a third of the UK’s population being aged 50 and over. By 2032, the number of people aged 65 and over is predicted to increase by over 40%, and by 2040 almost 1 in 4 people in the country will be 65 and over . If the drinking patterns of older adults in the UK doesn’t change, the percentages of older adults at risk from alcohol-related harm will rise dramatically. In a recent survey, 9 of 10 UK respondents were not worried about their drinking (89%), yet 20% of the sample were at increasing or higher risk of alcohol-related harm. Nearly all (98%) respondents said that they do not need advice for drinking and have not sought it. Higher proportions of respondents from Scotland and Northern Ireland feel their alcohol use has negative consequences compared to the UK average (19% and 20% compared to 16% overall).

There needs to be more awareness amongst health and care professionals about the growing issue of older adults experiencing alcohol-related harm. Additionally, there is a rising need for older adults at risk from alcohol-related harm to be included in any mental health strategies, considering the disproportionate increase of 150% between 2002 and 2012 in alcohol-related mental health problems in the over 60s in England.

Alcohol awareness and actions to prevent alcohol risks must be seriously taken into consideration, also policy makers need to implement strategies to reduce alcohol-related harm. Citizens should be constantly informed about the damages that alcohol brings over their body, mental health and lifestyle.

Sources: http://www.ilcuk.org.uk/images/uploads/publication-pdfs/Drink_Wise_Age_Well_-_Alcohol_Use_and_the_Over_50s_1.pdf

Aging and Longevity Conferences in UK 2017-2018

- *Greater Manchester Ageing Conference 2017* was held on **16th February** in Manchester organised by the GM Ageing Hub, bringing together a wide range of influential GM leaders, world-leading academics and community sector innovators to discuss prospects for building an age-friendly city-region. The conference also marked GM's five year partnership with the Centre for Ageing Better and its long-term collaboration with the World Health Organisation.
- The Centre for Innovative Ageing at Swansea University hosted the 46th Annual British Society of Gerontology Conference, "*Do Not Go Gentle*" - *Gerontology and a Good Old Age*, from the **5–7th July 2017** in Swansea. BSG welcomed delegates from around the world to celebrate in "The Art of Ageing", shining a light on the innovative and participatory research being conducted to improve the lives of older people across each continent. The annual conference is the crowning jewel where research from around the world is presented to a diverse audience, reflecting both the scope of the research and the membership of the society.
- 15th annual *Anti Ageing Conference London (AACL) 2018* will be held on **11-13th October 2018**. British Society of Anti-Ageing Medicine (BSAAM) aims to provide an opportunity to update delegates with academic, scientific and clinical knowledge as well as facilitating networking with other members of the medical and scientific community worldwide, while providing continuing medical accreditation. BSAAM's AACL 2018 will host international professionals from around the world, including scientists, physicians, gerontologists, health care practitioners, medical centre directors, spa and clinic owners, and those interested and knowledgeable in the field of anti-ageing, preventative health care and complementary medicine to attend these cutting-edge scientific lectures for Continuing Professional Development (CPD) credit and Continuing Medical Education (CME) credit.

Sources: <https://www.micra.manchester.ac.uk/connect/events/gm-ageing-conference-2017/>
<https://www.antiageingconference.com/>
<http://www.swansea.ac.uk/bsg17/>

Aging and Longevity Conferences in UK 2017-2018

- *Innovating for Ageing* was launched by the Just Group and the International Longevity Centre (ILC-UK) in January 2018 to identify solutions to the issues faced by vulnerable consumers in later life. On **19th June 2018** in London will be held the workshop: *Innovating for Ageing – Identifying Solutions for Vulnerable Consumers*. Considering that there is a need for innovation to help us better support consumers at risk of vulnerability due to: physical disability, illness, dementia or financial exclusion, *Innovating for Ageing* provides a platform to do this. The workshop will feature experts in a range of vulnerabilities who will describe the problems that need to be solved. The *Innovating for Ageing* innovation sprint will provide a launchpad for the creation of cutting-edge ideas and solutions to help improve the lives of vulnerable consumers.
- *ISCF Workshop: Consumer Data for Ageing Research* supported by UCL Grand Challenges, Simmons & Simmons and Innovate UK, will take place on **19th June 2018** in London. As part of the Industrial Strategy Challenge Fund (ISCF), the Healthy Ageing challenge will deliver new products and services that support older people in the UK to remain active, productive and independent. The workshop will bring together senior academics in ageing research, data scientists and consumer data organisations to work together on understanding how large consumer data may be used to gain insights into ageing. The purpose of the workshop is to convene potential collaborators and flesh out questions, hypotheses and potential solutions that could be developed for ageing using consumer data.
- On **29th November 2018** in London will take place the 4th annual *Future of Ageing Conference*, which assembles experts from the fields of health, housing, finance and business to identify the challenges and opportunities posed by an ageing society. The conference is expected to be attended by 250 people, including policy-makers; business leaders; charity sector experts; public sector decision makers; local authority staff; academics; and senior journalists.

Sources: <http://www.futureofageing.org.uk/>

http://www.ilcuk.org.uk/index.php/events/innovating_for_ageing_identifying_solutions_for_vulnerable_consumers

<https://www.eventbrite.co.uk/e/iscf-workshop-consumer-data-for-ageing-research-tickets-45402443932?aff=>

Life Expectancy in the UK

The Office for National Statistics determined that the UK life expectancy for men is 79.4 years and 83.1 years for women. According to the CIA's rankings, the UK has the 33rd highest expectancy, languishing behind countries like San Marino, Iceland, Switzerland and Israel. The Office for National Statistics shows that by 2041, women will live to 86.2 years and men 83.4 years, a decrease of almost a whole year compared to previous figures released in 2015. Professor Peter Bradley, knowledge and intelligence director at Public Health England, recognised the overall decline in life expectancy, but advised caution in drawing conclusions pending further research.

According to the “*Chapter 1: life expectancy and healthy life expectancy*” research published by the Public Health England on 13 July 2017 “the older a person is, the more likely they are to suffer with chronic conditions such as dementia, diabetes and arthritis”. Danny Dorling, professor of human geography at the University of Oxford, said influenza, obesity, alcohol and smoking could largely be ruled out as contributory factors.

The Times reported that residents in former mining towns and isolated rural areas saw the biggest fall, while London and the southeast continued to see a rise in longevity. Labour MP **Dan Jarvis**, whose Barnsley Central constituency has one of the lowest rates of life expectancy in the country said:

“The decline in life expectancy in post-industrial areas is an incredibly concerning, if not surprising, development. It is part of a larger inequality between North and South: in employment rates; in levels of public spending; and in education and health outcomes,”

In November 2017, an article in the British Medical Journal Open found that severe public spending cuts in the UK were associated with 120,000 deaths between 2010 and 2017.

Sources: <https://www.gov.uk/government/publications/health-profile-for-england/chapter-1-life-expectancy-and-healthy-life-expectancy>
<https://www.independent.co.uk/news/uk/home-news/life-expectancy-uk-plumments-ons-data-hartlepool-torridge-amber-valley-barnsley-a8164171.html>

Tina Woods

Tina Woods founded Collider Health, which is focused on health transformation and the creation of ecosystems with the right mix of organisations and people to drive meaningful change and impact. She supports startups and works with corporations to help them partner with and invest in startup businesses, and to develop new products and services through collaborating with leading edge players, for example in blockchain technology and artificial intelligence.

Woods has many years of experience working with pharma and medical devices and more recently has started to work increasingly with clients in insurance, pensions and banking in new areas and ventures, particularly in private health and innovative businesses in the ageing space.

She is currently helping the NHS build their Artificial Intelligence ecosystem, supporting Innovate UK with consortia development for the UK Healthy Ageing Grand Challenge, designing the European Diversity Award for leading insurer AXA Health Tech & You programme, and a number of other projects.

She has extensive connections and networks with the innovation community: Woods is a strategic partner with D/SRUPTION and writes regularly for them. She also has a particular interest innovation in the ageing space, and work regularly with a number of networks, including Aging 2.0, who are a partner of the Future Health Collective.

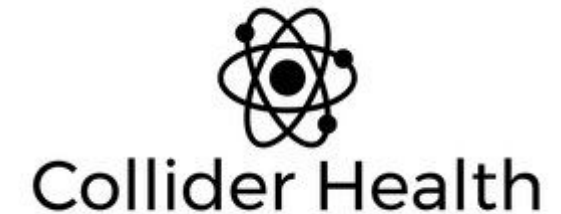
Before setting up Collider Health, Woods was Head of new startup Lansons Health and prior to that, was Deputy MD (Medical Education) and Global Client Leader for Ogilvy Healthworld, leading teams and developing business for major global pharmaceutical accounts (+£1 million). She has been involved in a number of transformational change projects for pharma to help them become more patient centric.



Tina Woods
Founder & CEO, Collider
Health Chair, Future Health
Collective

Collider Health

Collider Health is a health innovation engine connecting people and organisations in imaginative ways to think and act differently. The team builds collaborative networks to help corporates, start-ups, third sector and investors form strategic partnerships and facilitate smart investment for a long term bringing sustainable impact.



Collider Health is led by Tina Woods, who has worked in health education and communications for over 20 years and is a leader in the growing army of people who recognise big changes can come from very small places.

Collider Health has experience working with pharma, biotech, private health and insurance, professional services, healthcare SMEs, charities and start-ups. The team is composed of specialists in the fast moving area of health technology, and has established relationships with leading incubators, accelerators, digital health evangelists, innovators and tech corporates. Collider Health is advising investors on their portfolios of technologies and businesses in blockchain technology and artificial intelligence.

Future Health Collective is a multi-disciplinary, cross-sector group geared to foster collaboration and radical innovation in areas of unmet need in health and social care with a vision to create better lives for people. The first theme was on 'data that matters' in a digital economy. A round table was held on 17th November, 2017 hosted by the Government Office for Science, and with the support of the partners Auriens, Aging 2.0, Future Care Capital, Partnership for Change and Kent, Surrey & Sussex Academic Health Science Network (KSS AHSN), involved senior leaders from the NHS, social care, third sector, industry, technology and policy to explore specific opportunities and barriers of using data to underpin new, person-centric and outcome- focused models of health and care.

Sources: <https://www.colliderhealth.com/>
<https://www.colliderhealth.com/future-health-collective/>

Collider Health

Collider Health is working with **Innovate UK** to develop a strategic ecosystem for the Industrial Strategy Challenge Fund - Healthy Ageing (£98 million), to help corporates, startups, third sector and investors form strategic partnerships and facilitate smart investment for long term, sustainable impact. A key requirement is to encourage companies from diverse industries including energy, financial services, insurance, pensions, property, retail, banks and telcos to collaborate- and develop more radical ideas for a marketplace for consumer products and services 'that care' and which appeal to the aspirations and needs of the growing ageing community.

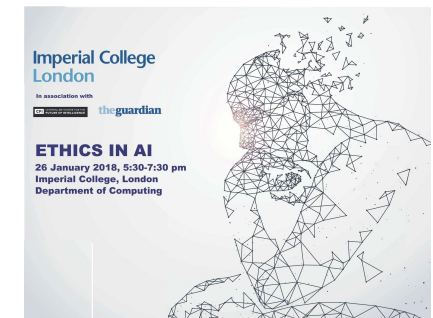
Collider Health worked with **Imperial College Department of Computing** to host a public event on 26 January 2018 on '*Ethics in Artificial Intelligence (AI)*'. The event debated social and ethical implications of AI, what the world will look like in the next ten years and how we can make sure it goes in a positive direction for the sake of our citizens and humanity in general. Chaired by Ian Sample, Science Editor of the Guardian, the event involved experts in AI, ethics, philosophy, theology and public policy.

Collider Health partnered with **Opinium Research** and their latest collaboration "*Data Powered Health- How Technology is Reshaping the Nation's Attitude to Health*" provides the latest insight into the public's appetite for embracing technology, trends in consumer adoption of health apps, and attitudes towards data sharing and health ownership. This report shows how thinking has moved on since the publication in 2015 of *People Powered Health- Engaging Citizens in the Future of Health and Technological Innovation*.

Source: <https://www.colliderhealth.com/projects/>

Healthy Ageing Industrial Strategy
Challenge Fund

Innovate UK



Chapter IV

Global Longevity Industry Landscape Overview

The Science of Longevity
The Business of Longevity
AI for Drug Discovery
and Advanced R&D

Introduction

Having introduced readers to the breadth and depth of the historical, current and near future Longevity Industry Landscape in the UK, the present chapter takes a broader look at the Global Longevity Industry landscape, and shows how the UK Longevity Industry fits in within the context of international developments in this rapidly evolving sphere. In this chapter we summarize some of the main findings, conclusions and overarching trends identified in our previous reports, the Longevity Industry Landscape Overview Volume I: The Science of Longevity and Volume II: The Business of Longevity.



It also categorizes, systematizes and individually profiles 650 longevity-focused entities, including research hubs, non-profit organizations, leading scientists, conferences, databases, books and journals.

Longevity Industry Landscape Overview Volume II: “The Business of Longevity”, standing at 670 pages, gives a more comprehensive look at the major players, companies, investors and influencers that comprise the emerging longevity industry globally, and discusses in detail what the major risks and roadblocks are moving forward, and the major items that stand to jeopardize the credibility and success of the industry.



Biogerontology Research Foundation

Prevent. Restore. Preserve.

Website: <http://bg-rf.org.uk>

Contact: info@bg-rf.org.uk

The **Biogerontology Research Foundation (BGRF)** is the UK's oldest longevity non-profit organization founded by leading geroscientists. The **BGRF** funds and conducts research which aims to develop biotechnological interventions to remediate the molecular and cellular deficits which accumulate with age and which underlie the ill-health of old age. The **BGRF's** Board of Trustees include British billionaire Jim Mellon, prominent longevity investors Dmitry Kaminskiy and Jim Mellon, renowned geroscientists Dr. Alex Zhavoronkov, João Pedro De Magalhães and Dr. Richard Faragher, as well as Jim Plante.



Website:
<http://deepknowledge.life>

Contact:
info@deepknowledge.life

Deep Knowledge Life Sciences is a London based investment fund focused on ground-breaking research in life sciences and aging. **DKLS** strategically invests in mission-driven companies and supports founders who will bridge the gap between basic biological research and real-world healthcare products that extend healthy lifespan. **Insilico Medicine**, a company applying the latest advances in deep learning to biomarker development, drug discovery and aging research, is the **DKLS flagship investment**.



LONGEVITY.INTERNATIONAL

Website: <http://longevity.international>

Contact: info@longevity.international

Longevity International is an online interactive database of longevity scientists, companies, and investors. This platform allows different stakeholders in the longevity industry to connect, network, research and analyze.

On the next stage this platform will also employ *cutting-edge data visualization software and a networking section* where various stakeholders within the longevity industry can connect and collaborate, where longevity companies are matched with the right investors, and where scientists can make contributions.



Website:
<http://aginganalytics.com>

Contact:
info@aginganalytics.com

Aging Analytics Agency aims to use its knowledge of anti-aging technologies and current research paradigms to create invaluable databases and provide a supporting framework for financial decision making. The goal of **the Agency** is to promote the growth of biogerontology, enhance international collaboration, and increase interaction and cooperation between companies to benefit the field as a whole.

GLOBAL LONGEVITY INDUSTRY LANDSCAPE 2018



- COMPANIES
- INVESTORS
- SCIENCE HUBS



Top 10 Longevity Companies

Top 10 Longevity Investors

Top 5 Countries



AGING ANALYTICS AGENCY
Invest for life

Biogerontology Research Foundation
Prevent. Restore. Preserve.

DEEP KNOWLEDGE LIFE SCIENCES

LONGEVITY.INTERNATIONAL

GLOBAL LONGEVITY SCIENCE LANDSCAPE 2017



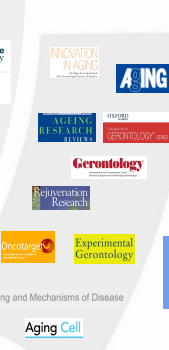
- SCIENCE LABS
- NON-PROFIT
- GEROSCIENCE HUBS



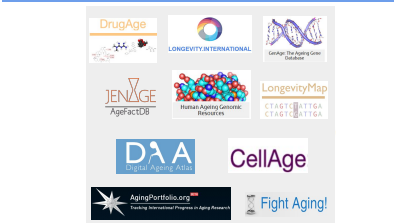
Top 10 Geroscience Books



Top 10 Geroscience Journals



Top 10 Online Resources



Top 10 Geroscience Conferences



Timeline for Completion of Technologies for P3 Medicine Clinic Technology Readiness Level (TRL)

2018

2020

2022

30%

50%

100%



Small Molecules and Biologics



Next Generation Sequencing



Stem Cell Therapy



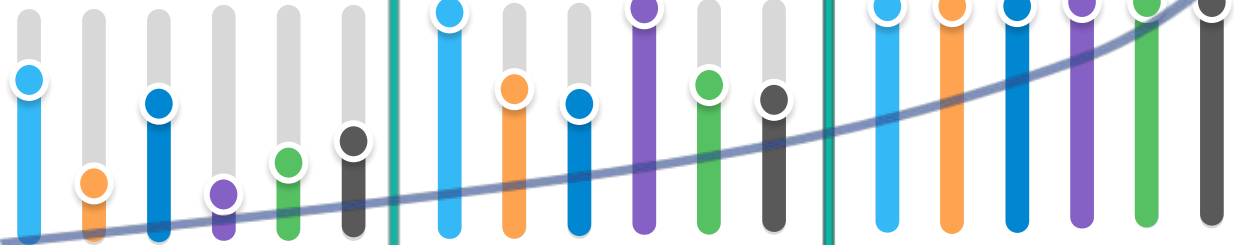
Bioinformatics



Gene Therapy (CRISPR)



3D Bioprinting



THE BUSINESS OF PROGRESSIVE MEDICINE

PRACTICAL APPLICATIONS



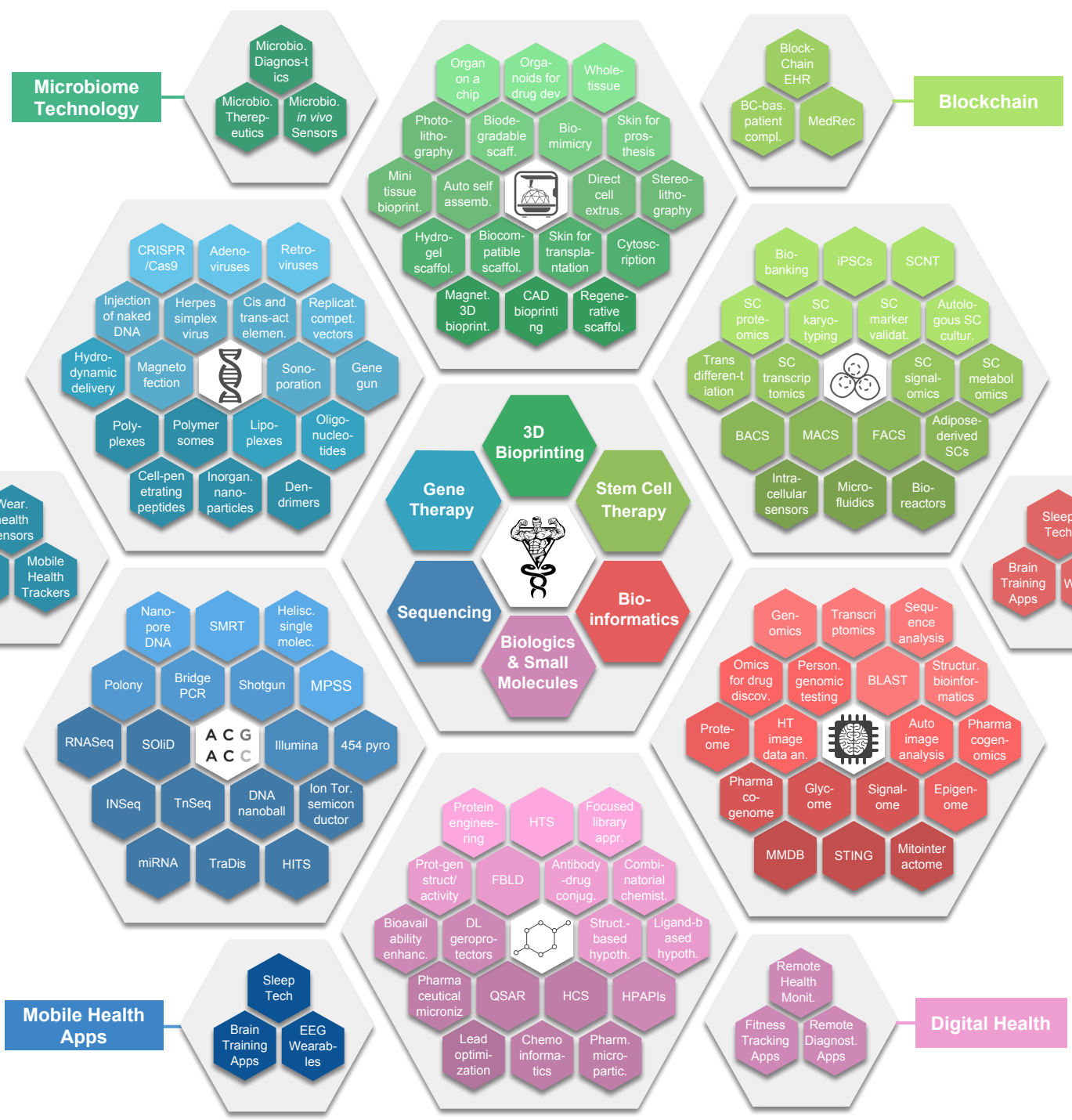
Top 120+ Technologies & Therapeutics TRL 8-9

AGING ANALYTICS AGENCY
Invest for life

Biogerontology Research Foundation
Prevent. Restore. Preserve.

DEEP KNOWLEDGE LIFE SCIENCES

LONGEVITY INTERNATIONAL



Technology Readiness Level (TRL)

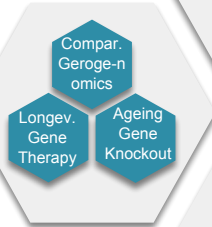
9	Commercialized
8	Pre-Production
7	Field Test
6	Prototype
5	Bench/Lab Testing
4	Detailed Design

Technology Readiness Levels (TRL) are a common measure of how close a technology is for practical use, used in many engineering disciplines. By applying it to progressive medicine, we can forecast how long it will take a given therapeutic or technology to witness practical applications in the clinic or home. The darkness of each hexagon represents its TRL, with darker colors indicating a low TRL and brighter colors indicating a high TRL. All technologies and therapeutics shown here have a TRL between 8-9.

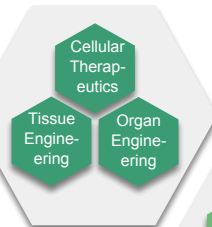
THE SCIENCE OF PROGRESSIVE MEDICINE LANDSCAPE

Top 120+ R&D Topics TRL 4-7

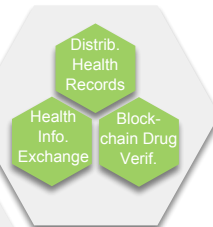
Translational Geroscience



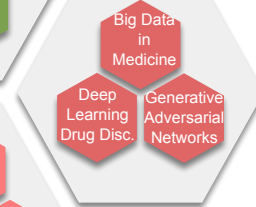
Regenerative Medicine



Blockchain



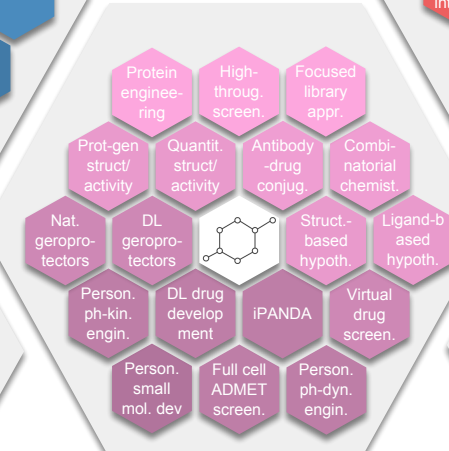
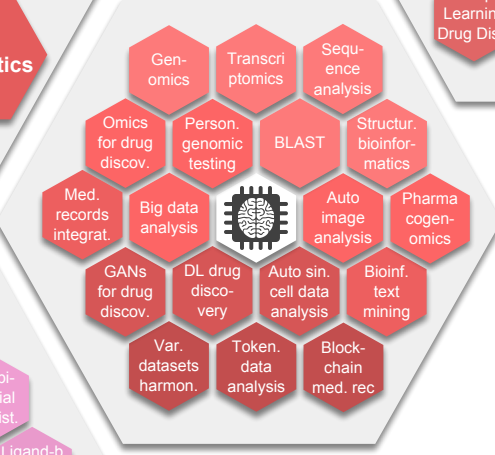
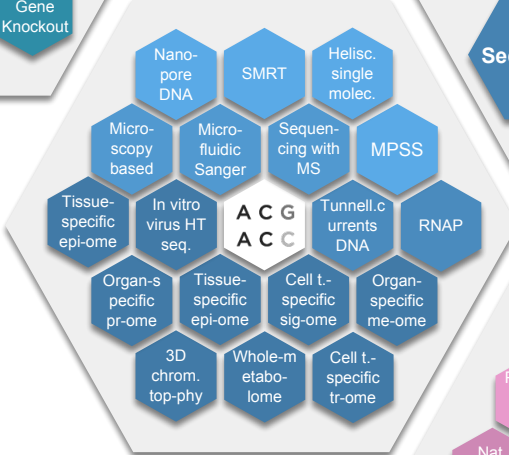
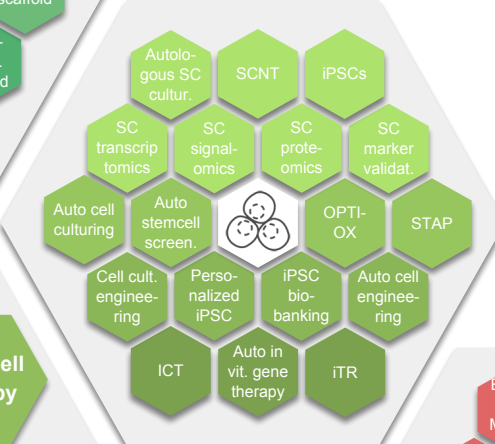
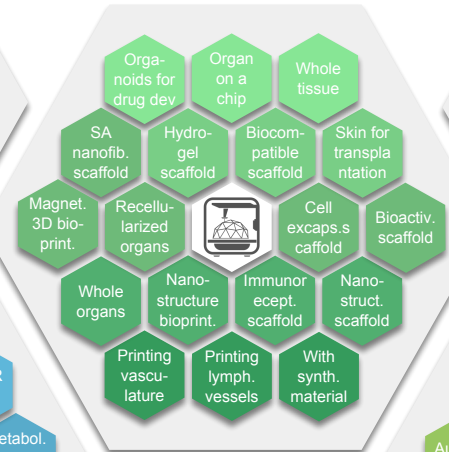
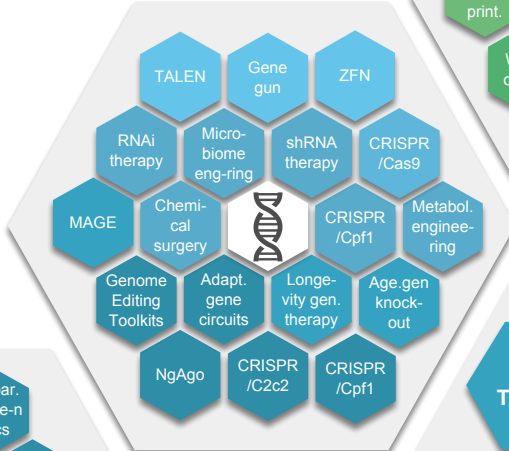
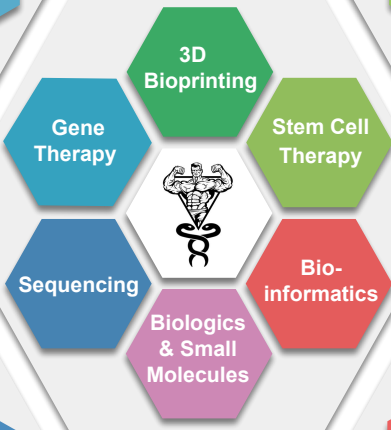
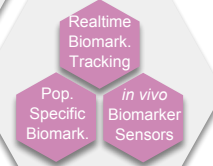
Artificial Intelligence



Gerocuticals




Biomarker Technologies




Technology Readiness Level (TRL)

9	Commercialized
8	Pre-Production
7	Field Test
6	Prototype
5	Bench/Lab Testing
4	Detailed Design


Technology Readiness Levels (TRL) are a common measure of how close a technology is for practical use, used in many engineering disciplines. By applying it to progressive medicine, we can forecast how long it will take a given therapeutic or technology to witness practical applications in the clinic or home. The darkness of each hexagon represents its TRL, with darker colors indicating a low TRL and brighter colors indicating a high TRL. All technologies and therapeutics shown here have a TRL between 4 – 7. Technologies surpassing a TRL of 8 are transferred to the practical applications of progressive medicine landscape overview.




AGING ANALYTICS AGENCY
Invest for life



Biogerontology Research Foundation
Prevent. Restore. Preserve.

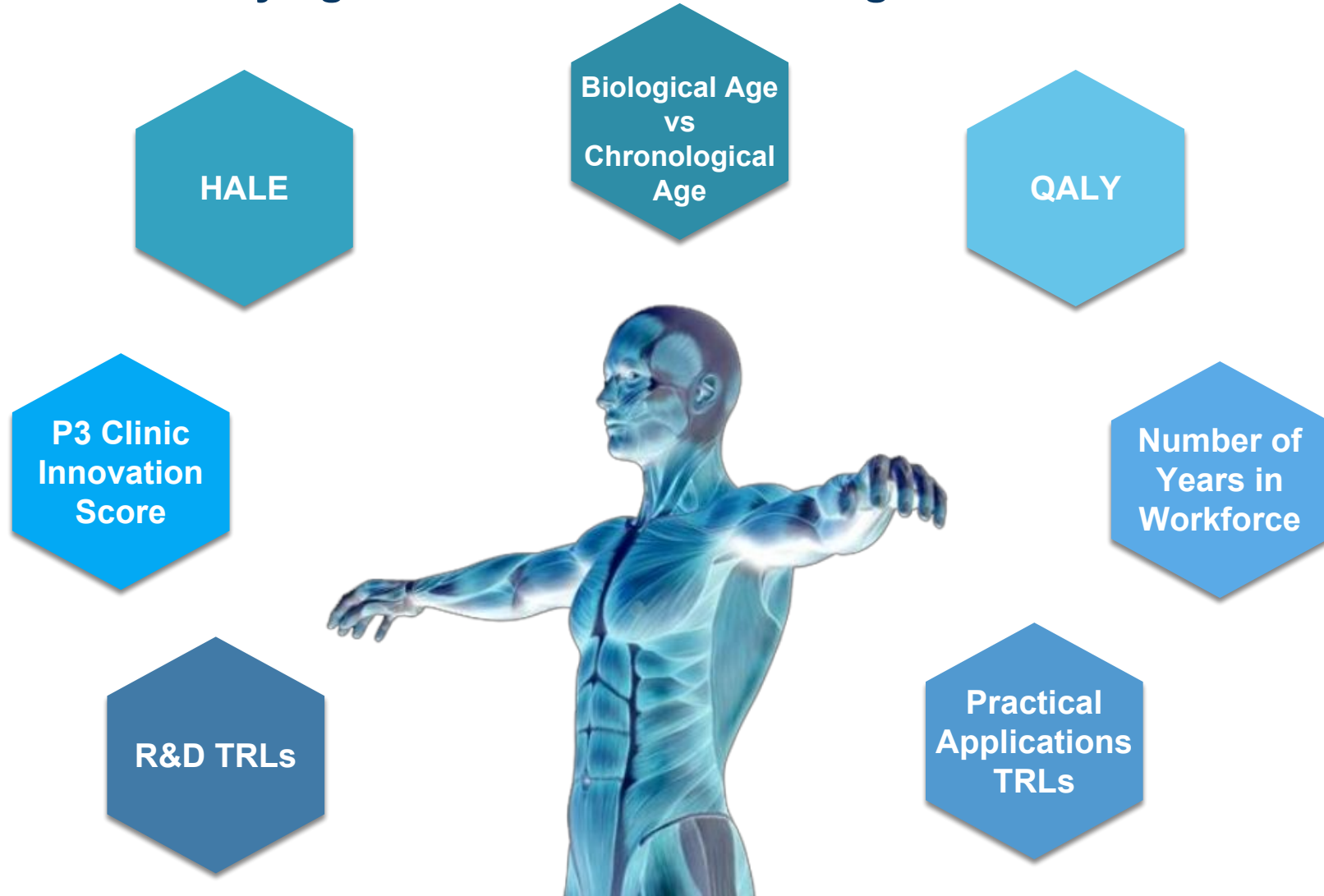


DEEP KNOWLEDGE LIFE SCIENCES



LONGEVITY INTERNATIONAL

Tying Wealth to Health via Tangible Metrics



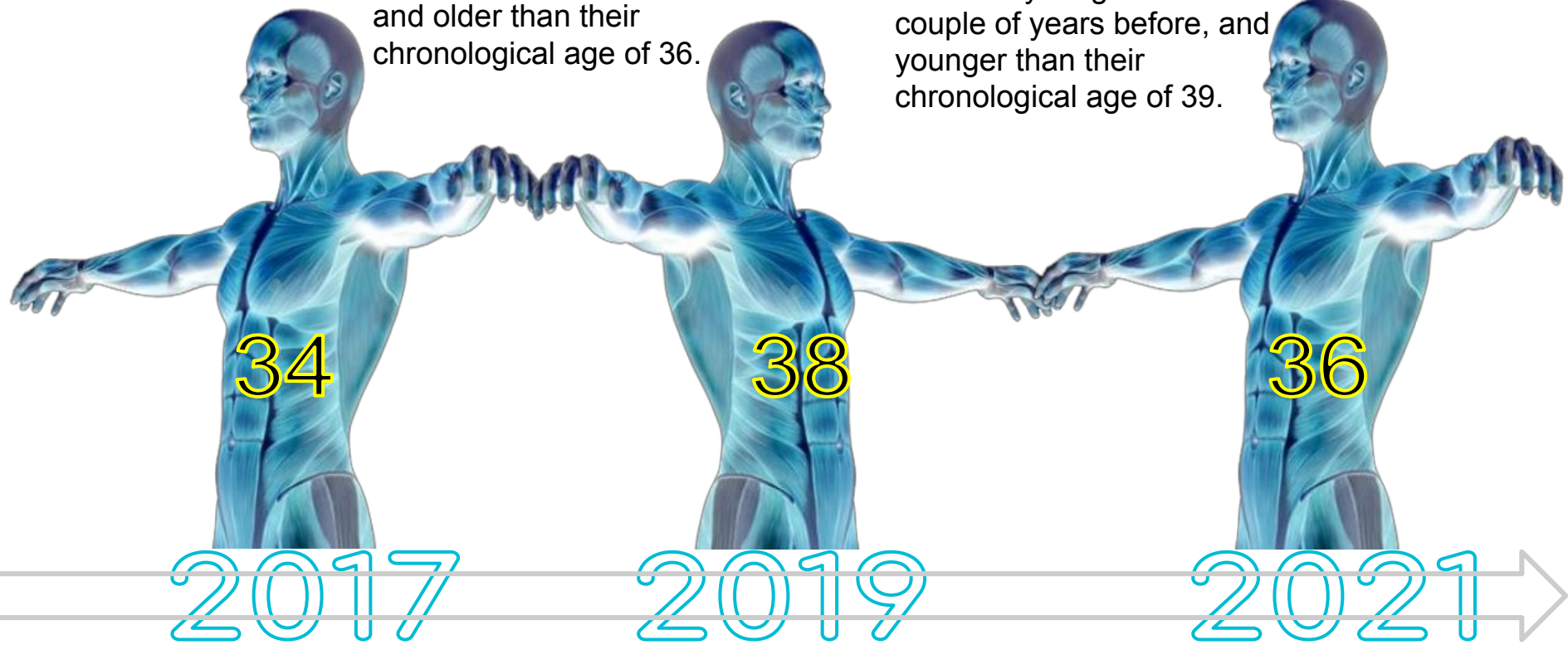
Precision Health & Health as an Asset: Tying Health to the Performance of Financial Instruments

The Integration of Health Data Science with Financial Data Science

- Biological Age vs Chronological Age
- HALEs: Health-Adjusted Life Years
- QALYs: Quality-Adjusted Life Years

A patients may see that their **biological age** is 38 in 2019 - older than a couple of years before, and older than their chronological age of 36.

Then, after use of P3 medicine they may see that their **biological age** is 36 in 2021 - younger than a couple of years before, and younger than their chronological age of 39.



Biological Age over Time

Chronological versus Biological Age



Chronological Age

- Measures how many times you, in this body, have revolved around the sun
- Cannot be altered by mind/body approaches
- Has little relevance to how you feel and function



Biological Age

- Measures how well your physiological systems are functioning
- Can be reversed by attending to your health
- Is the most important component of the aging process

<https://www.pinterest.com/pin/497999671268388652/?lp=true>

Precision Diagnostic



Digital avatar visualizes a combination of biomarkers and other diagnostic results

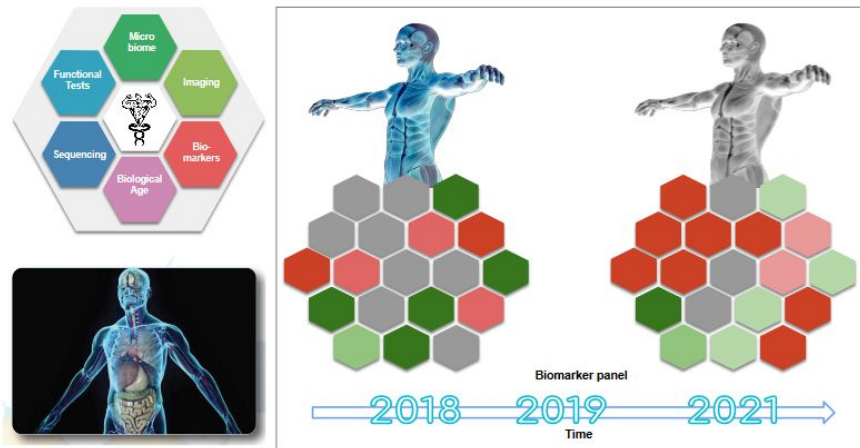
Collect your data today:

- Blood samples
- Biomarker analysis
- Database of personal biomedical data stored on blockchain

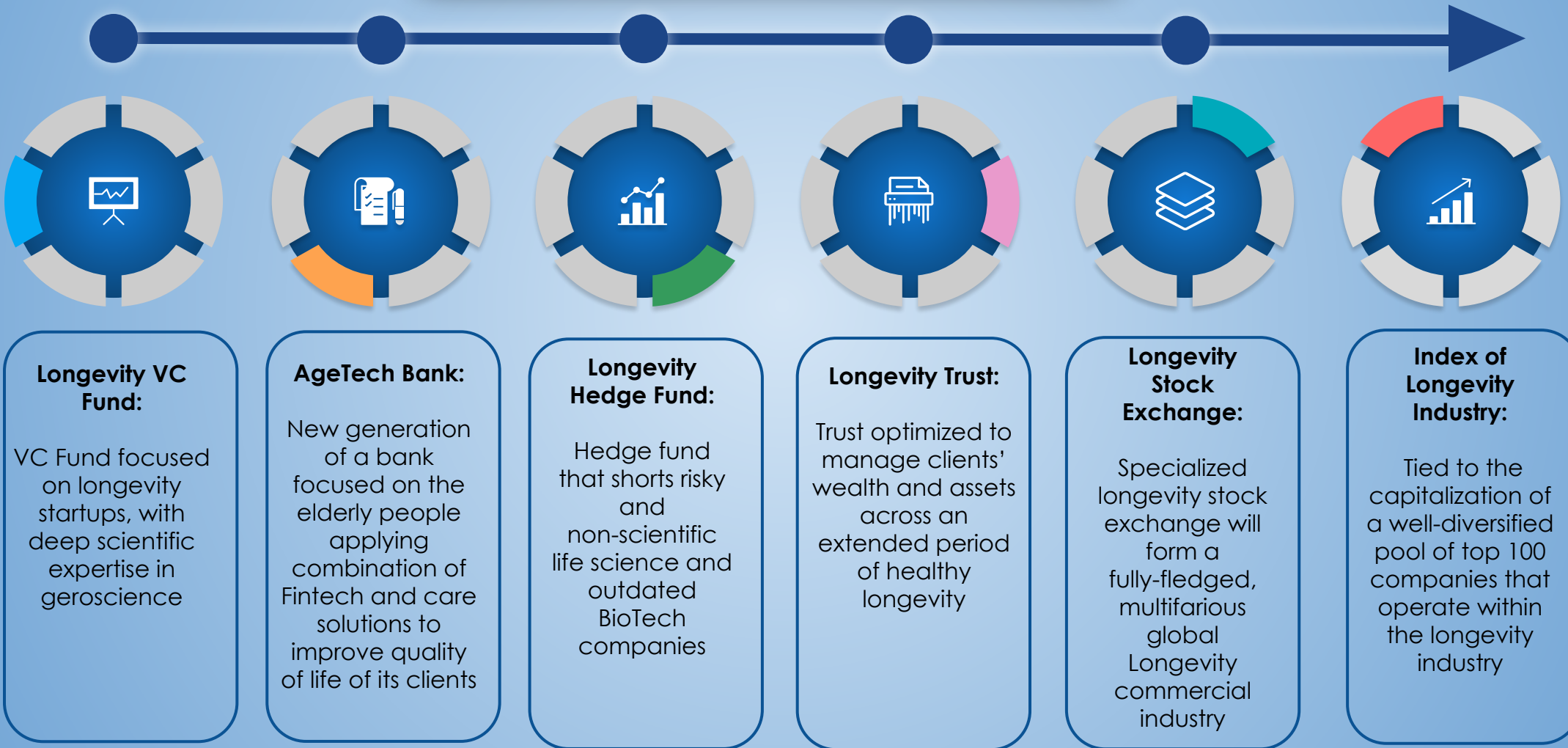
Future benefits:

- Data driven analysis of biomarkers dynamics over time
- Analyse the changes in your digital avatar
- Personalized interventions

Diagnostics Panel for Digital Avatar

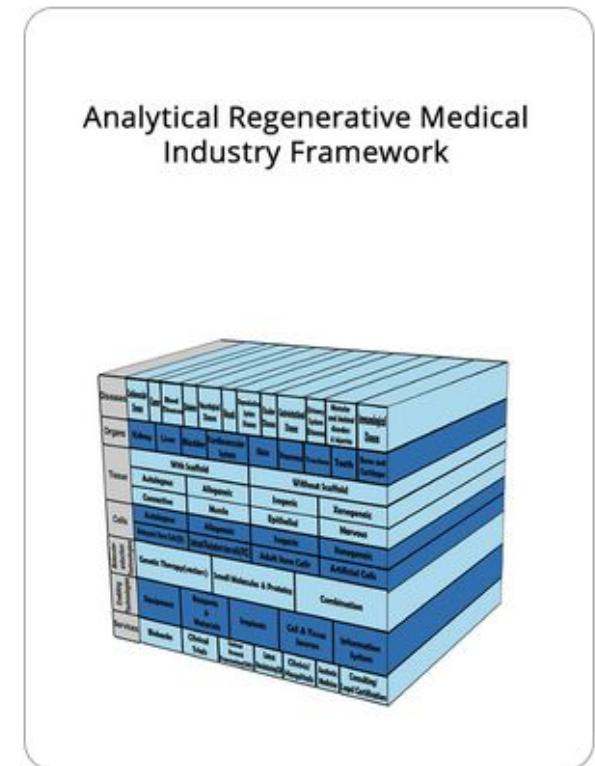


Roadmap Towards Longevity Financial Industry



Our Previous Reports

The Global Longevity Consortium, consisting of the Biogerontology Research Foundation, Deep Knowledge Life Sciences, Aging Analytics Agency and Longevity.International platform, have authored two major analytical reports on the Longevity Industry previously: *Longevity Industry Landscape Overview Volume I: The Science of Longevity*, and *Volume II: The Business of Longevity*, in addition to our previous reports, which focused on broader biomedical sectors, such as our 2015 report *Big Data in Aging and Age-Related Diseases Industry Overview*, our 2014 report *Investing in Regenerative Medicine: Technology Analysis and Market Outlook*, and our 2013 report *Analytical Regenerative Medicine Industry Framework*.



Our Previous Reports

In 2017 Deep Knowledge Analytics produced a report on the state of the AI for Drug Discovery industry, entitled AI for Drug Discovery Landscape Overview 2017, and in January 2018 released AI for Drug Discovery, Biomarker Development and Advanced R&D 2017.

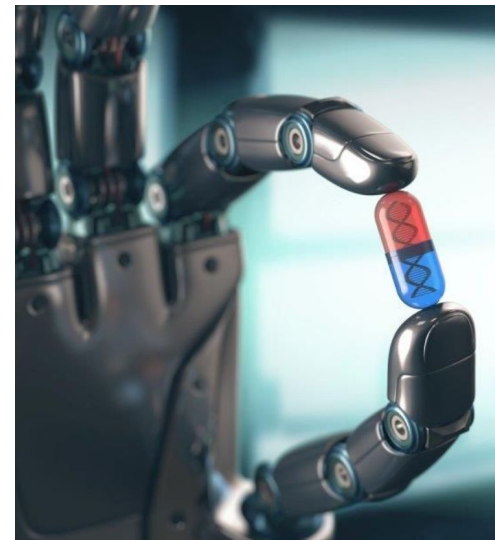
These reports give in-depth coverage of the exponentially-growing global AI in Healthcare industry, with a specific focus on AI for drug discovery, biomarker development and advanced R&D, profiling the top companies, investors and influencers in the AI for drug discovery space.

On average, it takes about a decade of research — and an expenditure of \$2.6 billion — to shepherd an experimental drug from lab to market. And because of concerns over safety and effectiveness, only about 5 percent of experimental drugs make it to market at all.

But drug makers and tech companies are investing billions of dollars in artificial intelligence with the hope that AI will make the drug discovery process faster and cheaper. And we are confident that AI in healthcare will make significant positive impact and will propel further Longevity research.



**AI FOR DRUG DISCOVERY,
BIOMARKER DEVELOPMENT
AND ADVANCED R&D
LANDSCAPE OVERVIEW 2017**



**AI for Drug Discovery
Landscape Overview 2017**

www.dkv.global



www.dkv.global



Our Previous Reports

LONGEVITY INDUSTRY LANDSCAPE OVERVIEW 2017

Volume I: The Science of Longevity

Geroscience, Policy, and Economics
The Paradigm Shift: from Treatment to Prevention



In 2017 and 2018, our consortium produced two state of the art analytical reports on the emerging Longevity Industry, produced by a dedicated team of scientists and industry analysts over a period of roughly two years.

Longevity Industry Landscape Overview Volume I: The Science of Longevity detailed the present state of precision, predictive and preventive medicine (referred to hereafter as 'P3'), how it works in conjunction with emerging preventative medical technologies, and the prospects for the next five years. *Volume I: The Science of Longevity*, set the landscape of geroscience against the backdrop of the 'silver tsunami' of global demographic aging. It summarised the history and current state of development in geroscience, examined whether existing proposed solutions measure up to the impending problems.

The consortium's first report tied together the progress threads of the constituent industries into a coherent narrative, mapping the intersection of biomedical gerontology, regenerative medicine, precision medicine, artificial intelligence, offering a brief history and snapshot of each. It also categorized, systematized and individually profiled 650 longevity-focused entities, including research hubs, non-profit organizations, leading scientists, conferences, databases, books and journals.

Our Previous Reports



Longevity Industry Landscape Overview Volume II: The Business of Longevity outlines the commercial side of this emerging industry. It describes the novel financial systems that will form the necessary framework of the industry. Mindful of the large size and complexity of the industry, the report utilizes comprehensive infographics and specialised mind maps in order to do for longevity what Mendeleev, with his Periodic Table of Elements, did for chemistry, so that specialists and non-specialists alike could stand united before a unified vision of the industry landscape. Standing at 670 pages, gave a more comprehensive look at the major players, companies, investors and influencers that comprising the rapidly

emerging longevity industry globally. It categorized, systematized and individually profiled what our consortium considers to be the top 100 longevity companies and VC firms, as well as the most prominent individual longevity investors and influencers. It offered a history of the longevity industry, its rise in 2016 and it's full-blown emergence in 2017, forecasting what our analysts consider to be the major trends and developments in the industry in the years to come, as well as discussing in detail what the major risks and roadblocks are moving forward, and the major items that stand to jeopardize the credibility and success of the industry.

AI for Drug Discovery, Biomarker Development and Advanced R&D Landscape / 2018 Q1

USA

Companies - 80
Investors - 180
Corporations - 25

Regional
Position

Investors

AI Companies

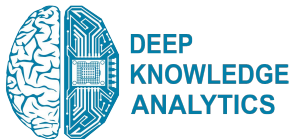
Corporations

UK

Other Regions

EU

Asia



Longevity Top 10 Lists

Top 10 Reg Med Companies

Top 10 Longevity Companies

Top Gene 10 Therapy Companies

Top 10 Longevity Venture Funds

Top 10 P3 Medicine Companies

Top 10 Research Institutions

Landmark Longevity Conferences

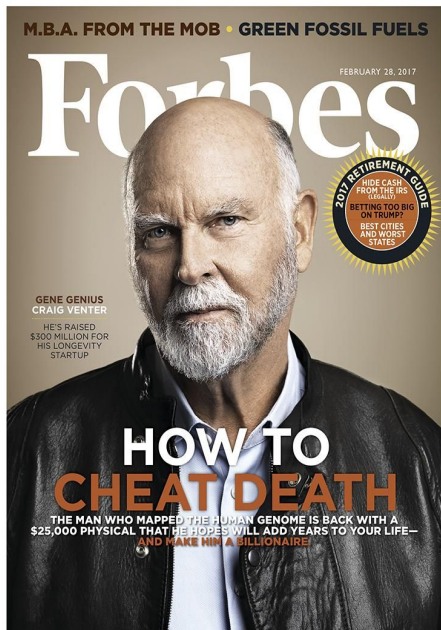
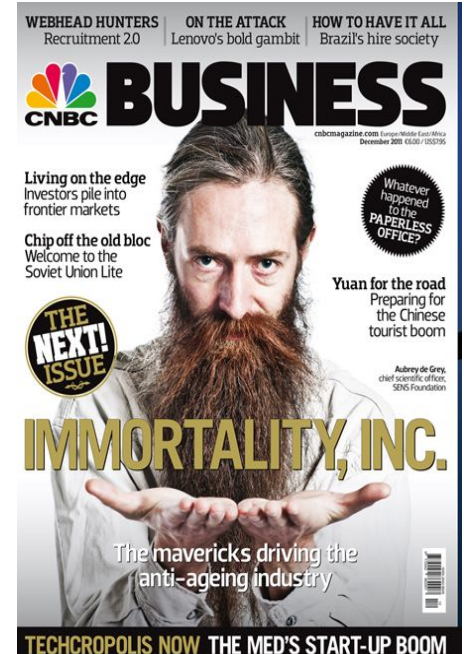
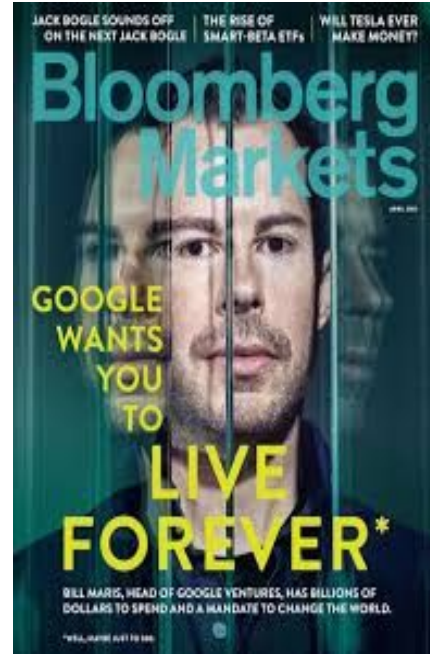
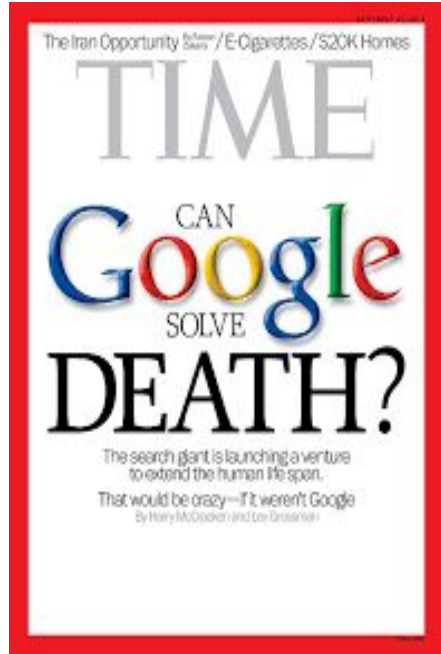
Basel Life Sciences Aging Forum



World Economic Forum



Grand Brands in Support of Longevity



Landmark Longevity Conferences

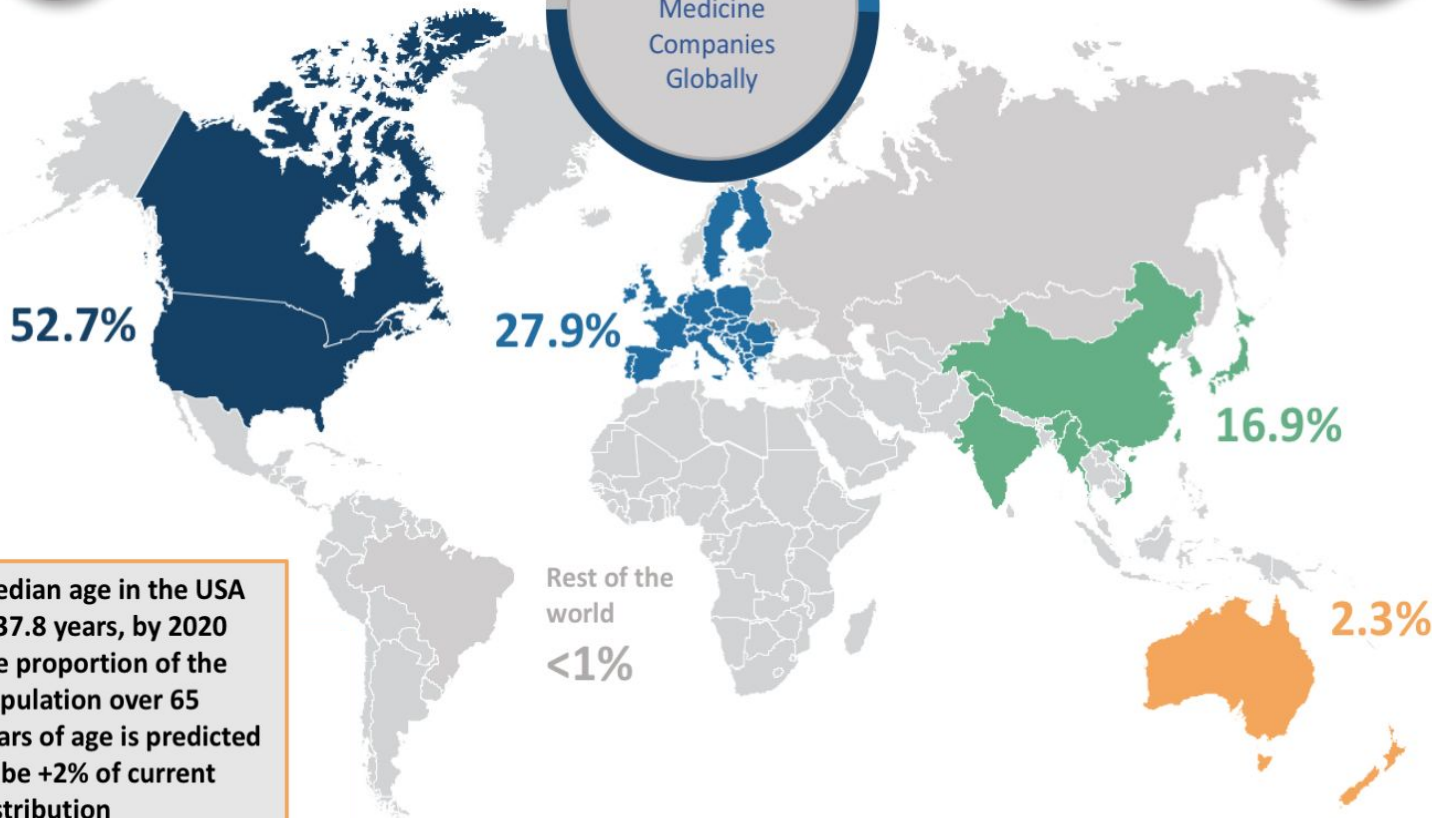
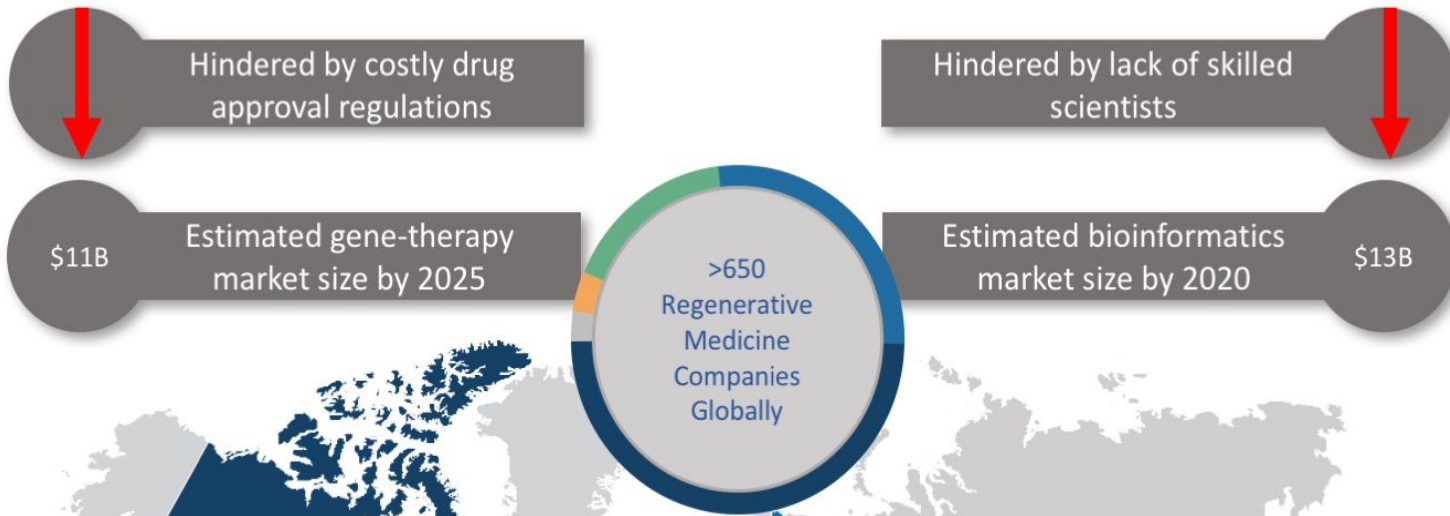
**The Economist:
The Business
of Longevity
and Ageing
Societies**



**Master Investor
Conference 2017
Organized by Jim
Mellon & Mann
Bioinvest in
London**



Regenerative Medicine Overview

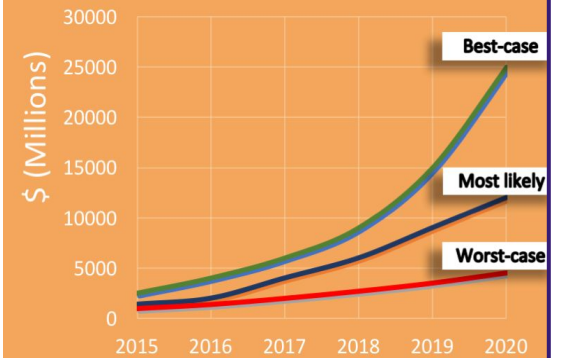


Median age in the USA is 37.8 years, by 2020 the proportion of the population over 65 years of age is predicted to be +2% of current distribution

Market Growth

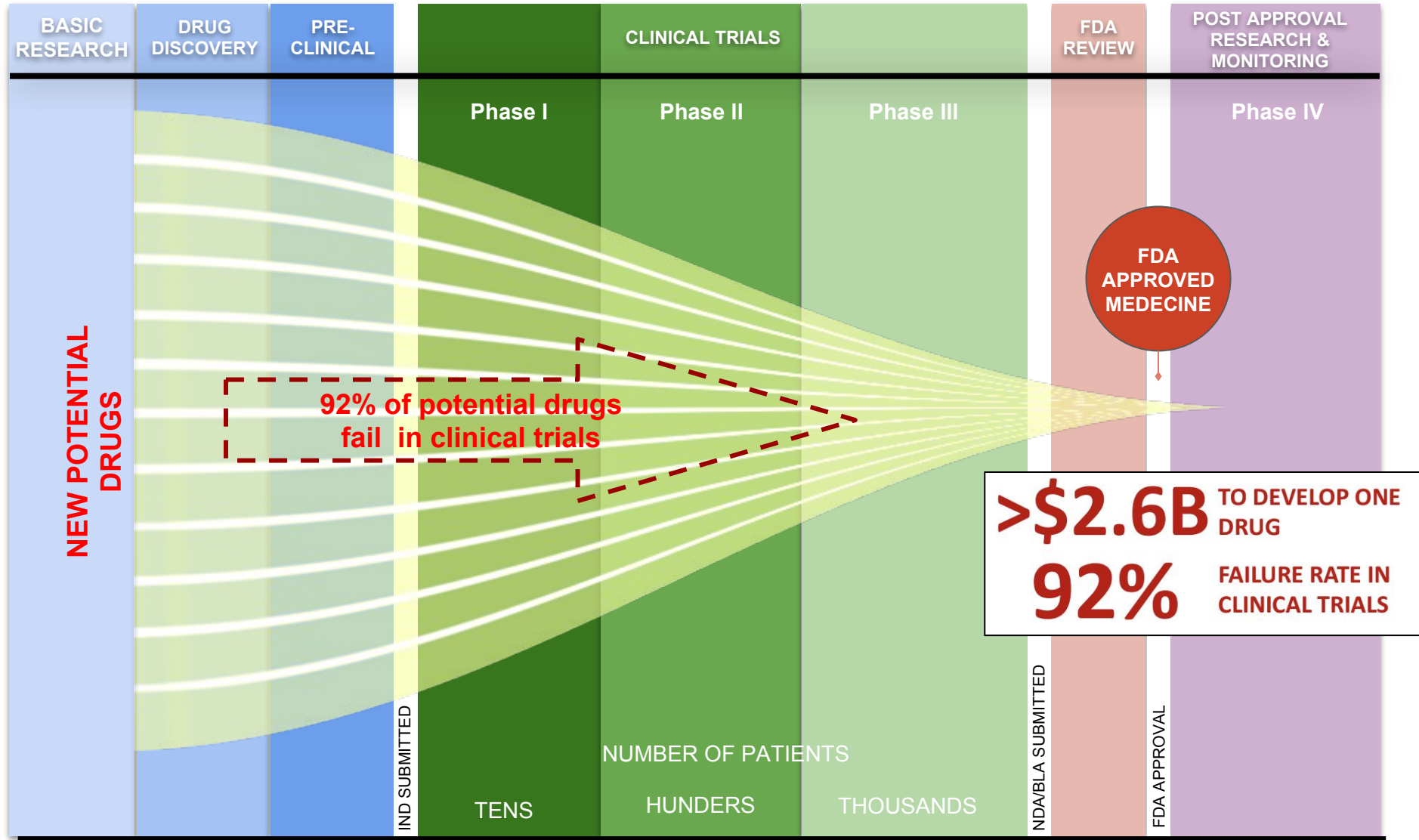
- Gene Therapy estimated at 35.8% CAGR
- Bioinformatics estimated at 20.9% CAGR
- Stem Cell Therapy estimated at 39.5% CAGR
- Biopharmaceuticals estimated at 8% CAGR
- Growth will accelerate through the coming biotech revolution

REG. MED GROWTH OUTLOOK



The Biopharmaceutical R&D Process

GLOBAL SALES: >\$1 Trillion
GLOBAL R&D: >\$150 Billion



Precision Diagnostics



Digital avatar visualizes a combination of biomarkers and other diagnostic results

Collect your data today:

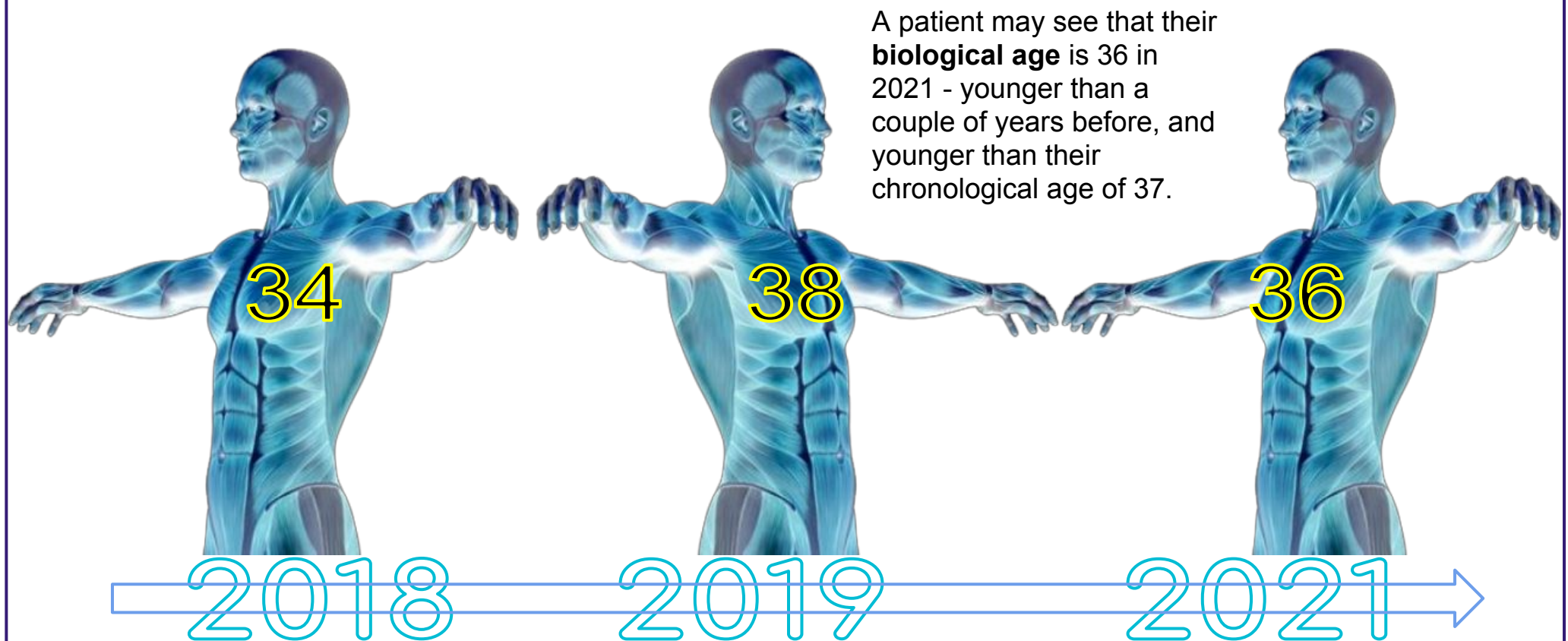
- Blood samples
- Biomarker analysis
- Database of personal biomedical data stored on blockchain

Future benefits:

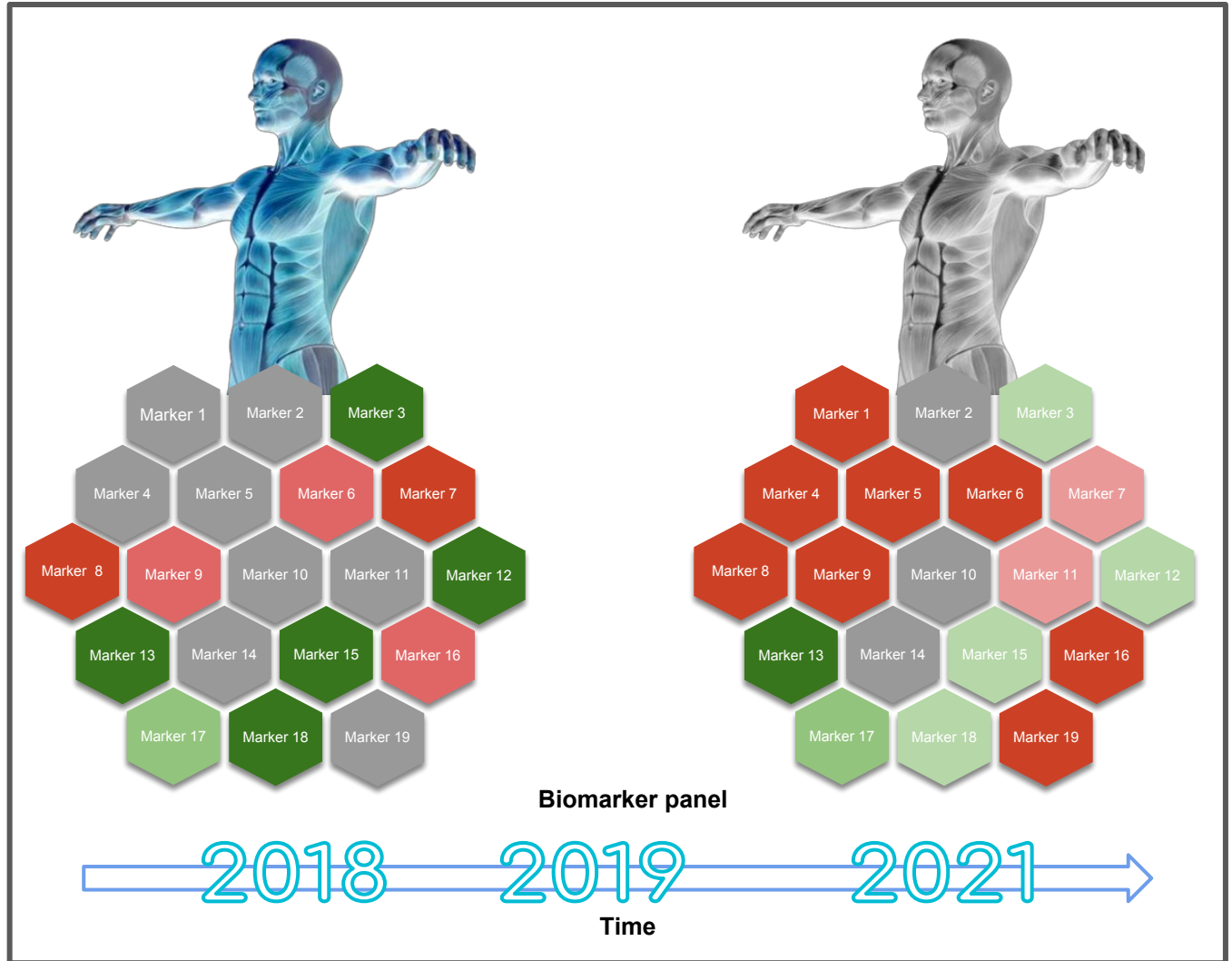
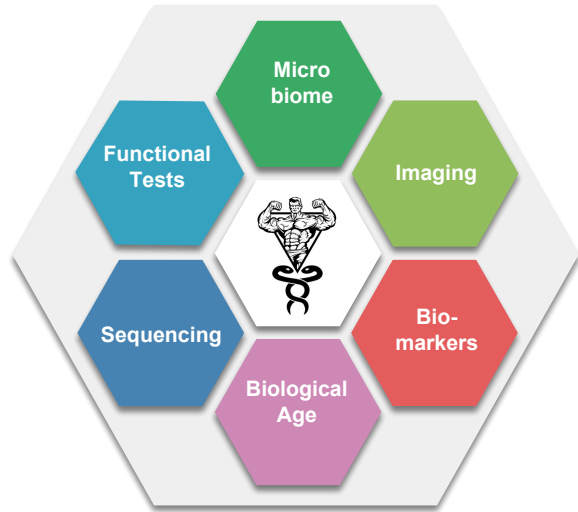
- Data driven analysis of biomarkers dynamics over time
- Analyse the changes in your digital avatar
- Personalized interventions

Young.AI is one such digital avatar, powered by AI to take biological data and assess patient health and age. The power of taking patient information and plugging into an AI-driven, digital environment is that not only does it enable insights impossible to obtain otherwise, but it allows for a powerful analysis of all these layers of data **over time**.

A truly 3D visualisation of patient health includes time, and follows not only deteriorations but also improvements over custom timeframes that allow interpretation based on personal circumstances including changing lifestyle, trialling treatments, etc. As such, a patient may be able to see how their body has been changing over 5 years in terms of health, function, biological age, etc.



Diagnostics Panel for Digital Avatar



The Application of AI for Advanced R&D

Generate Novel Drug Candidates

- Analyze data sets, form hypotheses and generate novel insights
- Identify novel drug candidates
- Analyze data from patient samples in both healthy and diseased states to generate novel biomarkers and therapeutic targets
- Predict binding affinity and other pharmacological properties of molecules
- Allow filtering for drug-like properties of molecules
- Reduce complexity in protein design

Aggregate and Synthesize Information

- Extract knowledge from literature
- Generate insights from thousands of unrelated data sources
- Improve decision-making
- Eliminate blind spots in research
- Identify competitive whitespace

Repurpose Existing Drugs

- Rapidly identify new indications for many known drugs
- Match existing drugs with rare diseases
- Conduct experimental biology at scale by testing 1000+ of compounds on 100+ of cellular disease models in parallel
- Generate novel biomarkers and therapeutic targets

Design and Run Preclinical Experiments

- Reduce time, money, and uncertainty in planning experiments
- Decode open- and closed-access data on reagents and get actionable insights
- Automate selection, manipulation, and analysis of cells
- Expedite development of cell lines and automate manufacturing of cellular therapeutics
- Automate sample analysis with a robotic cloud laboratory

Clinical Trials

- Optimize clinical trial study design
- Transform diverse streams of biomedical and healthcare data into computer models representative of individual patients
- Deliver personalized medicine at scale, by revealing optimal health interventions for individual patients
- Analyze medical records to find patients for clinical trials
- Automate matching cancer patients to clinical trials through personal medical history and genetic analysis
- Improve pathology analysis
- Identify patients that would benefit from novel therapies

Computation-based Drug Discovery



Millions of
Compounds



1000s of
Compounds



Clinical Trials
FDA Approval
Process

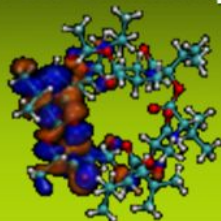
Synthesize new
Chemical Compounds

Robot-assisted screening
High Throughput Screening

Testing for Efficacy,
Side Effects, Safety

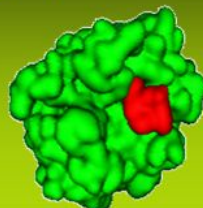
Computational Chemistry

- Synthesize compounds based on similarity



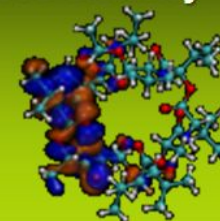
Virtual Screening

- Check if compounds bind to target proteins



Lead Optimization

- Modify chemicals to improve efficacy



1

Source: <https://blogs.nvidia.com/blog/2010/01/22/accelerating-the-pace-of-drug-discovery-using-gpus/>

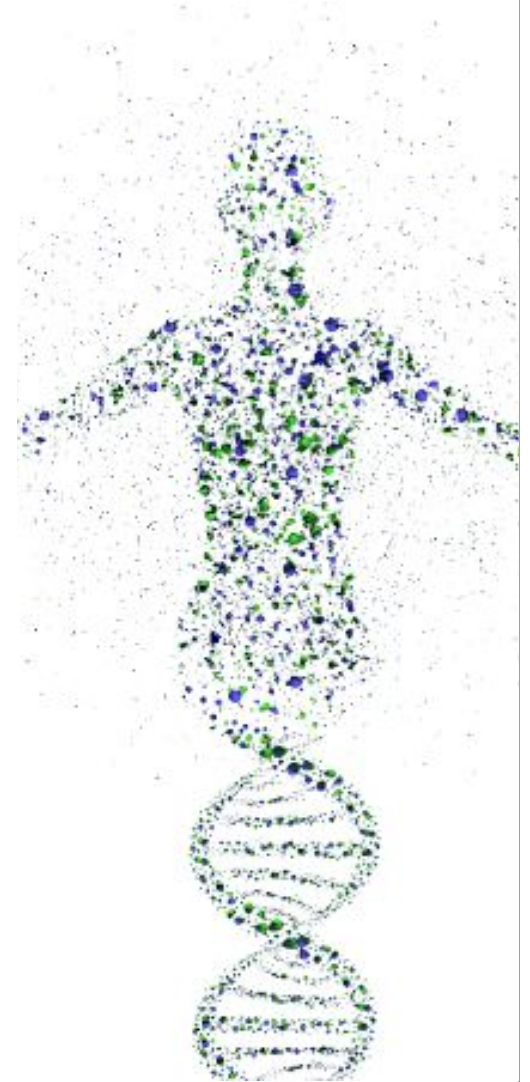
“ We have the means right now to live long enough to live forever. ”
~Ray Kurzweil

The following chapter describes the manner in which these technologies combine to form an industry.

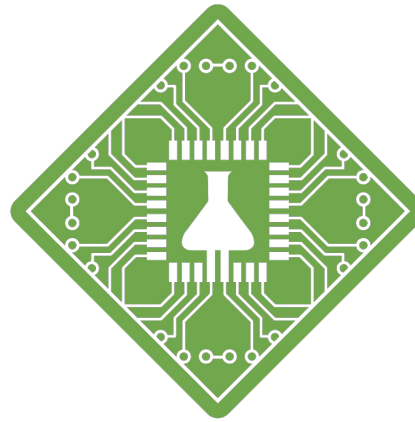
But any industry worthy of the Industrial Revolution title must have some form of automation or technological optimisation, and a system of finance behind it.

This chapters examines how AI and blockchain technology form the engine of the future industry, and touches upon some novel financial systems.

“I see a bright future for the biotechnology industry when it follows the path of the computer industry, the path that von Neumann failed to foresee, becoming small and domesticated rather than big and centralized. ” ~Freeman Dyson



AI companies in Longevity



Insilico Medicine



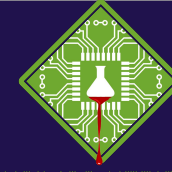
Atomwise
Better medicines faster.

Atomwise



BioAge

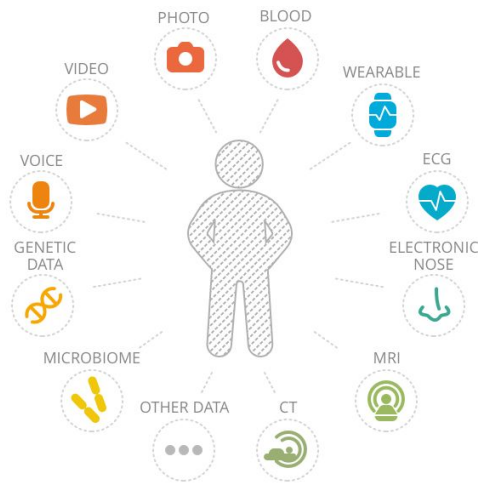
Insilico Medicine Aging.AI 2.0



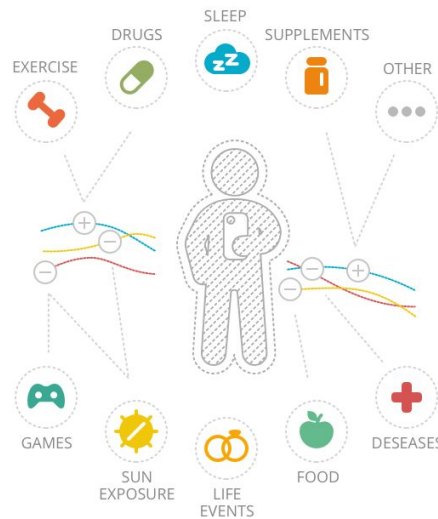
INSILICO MEDICINE

One of the most promising projects developed by Insilico Medicine is called Aging.AI 2.0, which is an AI-empowered platform integrating multiple predictors of clints age and used to track changes of health over time and optimize clints lifestyle.

<http://young.ai/>



Track your age
at every level!

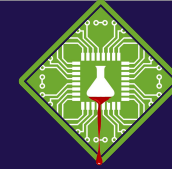


See what makes you
younger or older!



Stay young!

Insilico Medicine



INSILICO MEDICINE

Insilico Medicine's mission is to extend healthy longevity through innovative AI solutions for drug discovery and aging research. Insilico Medicine is committed to transforming the pharmaceutical industry with next-generation artificial intelligence. They are developing new tools for drug discovery and repurposing, biomarker development and pursuing novel strategies for rapid validation. Their projects combine advances in genomics, big-data analysis, deep learning and reinforcement learning.

Insilico Medicine and Biotime announced in 2016 the launch of a beta version of Embryonic.AI, an artificially intelligent system for analyzing the embryonic state of human cell samples using gene expression data.

Insilico established in 2017 a collaboration with GSK to discover novel biological targets and molecules. As a first stage of the collaboration, GSK will evaluate Insilico's technology in the identification of novel biological targets and pathways of interest to GSK.

In 2018 a collaboration occurred between Insilico Medicine and Juvenescence AI Limited, which is a drug development and artificial intelligence company focused on ageing and age-related diseases. Juvenescence AI combines advances in artificial intelligence with classical development expertise in order to prioritize and develop compounds from Insilico Medicine's end-to-end automated drug discovery pipeline through to clinical proof of concept.

By using AI and deep learning, the company can analyze how different compounds will affect certain cells, determine what drugs can be used to treat the symptoms, and any possible side effects that may occur.

Even though it's only been around a few years, Insilico has already been named by NVIDIA as one of the 5 top AI companies. With R & D resources spread out across the globe in the UK, Russia, and Belgium and a backing of \$14 million behind it

Sources: https://www.eurekalert.org/pub_releases/2017-08/imi-iec081417.php
<https://www.businesswire.com/news/home/20180205005024/en/Insilico-Medicine-Juvenescence-Announce-Drug-Candidate-Joint>



Atomwise is the creator of AtomNet, the first Deep Learning technology for novel small molecule discovery, characterized by its unprecedented speed, accuracy, and diversity.

Today, drug-resistant bacteria and pandemic viruses threaten to send us back to the time of plague and smallpox. Persistent, neglected diseases remain a dark spot on our collective conscience. And while we're all living longer, diseases of aging like Alzheimer's still have no cure. Atomwise has the unique ability to research hundreds of millions of potential medicines rapidly, making it fundamentally easier to tackle these big problems.

Atomwise's AtomNet platform uses structural information to predict binding between molecular targets and small molecules by processing millions of data points regarding successful and unsuccessful ligand-binding interactions. The company has more than 50 molecular discovery programs, including confidential projects with AbbVie Inc. and Merck & Co. Inc.

In April 2017, Atomwise started a program to motivate academic scientists to explore the drug-hunting potential of its technology. Researchers can apply to the company's Artificial Intelligence Molecular Screen (AIMS) awards program by identifying the disorder they hope to treat, and the disease-causing biomolecules they want to defeat with a drug. Successful applicants will receive 72 compounds that Atomwise predicts are most likely to work as that drug.

Atomwise has been partnering up with big pharmaceutical firms, biotechnology companies, and university research labs in an effort to speed up the discovery of new drug candidates for neurodegenerative diseases, cancer, and other disorders. In June, the startup also announced a collaboration with Monsanto to find compounds that might protect crops against pest infestations and diseases.

Source: <http://www.chematria.com/>
<http://www.4-traders.com/ABBVIE-12136589/news/AbbVie-AI-drug-discovery-company-Atomwise-raises-51M-series-A-26122374/>
<https://www.xconomy.com/san-francisco/2018/03/07/atomwise-raises-45m-to-grow-ai-driven-drug-discovery-business/>

BioAge



BioAge is committed to contribute to and support the evidence-based medical approach to a healthy lifestyle, accomplished through diet, exercise, supplementation and the use of integrative medicine.

The overall aim of the proposed staff exchange programme is to build, extend and strengthen sustainable international collaborations between the partners so as to create a knowledge base for biomarker based research related to aging, sampling techniques in the elderly and biomonitoring studies.

BioAge develop biomarkers and drugs that impact human aging by coupling genomic data with machine learning. BioAge is building a platform that doesn't require waiting for its subjects to actually age. Instead, it wants to measure biological age using signals floating in a drop of blood.

BioAge Labs raised \$10.9M in Series A financing to accelerate drug discovery for aging in 2017. BioAge is betting on the power of high-throughput human data, coupled with innovative machine learning, to substantially accelerate drug discovery for aging. The company take a hybrid experimental and computational approach to identifying the molecular signatures that drive aging, working with multiple partners in academia and industry. The funding will enable BioAge to build their team, refine and test their signatures of aging, and begin in vivo evaluation of drug candidates. Their initial targets for drug development will be specific diseases where aging is causal; however, their ultimate goal is more ambitious—to combat the suffering and disability caused by all aging-related diseases, and to restore both the quality and quantity of life that is so often lacking in old age.

Sources: <https://medium.com/@BioAge/bioage-labs-raises-10-9m-in-series-a-financing-to-accelerate-drug-discovery-for-aging-31974fcb3229>
<http://bioage.com/about.html>
<https://a16z.com/2017/07/28/bioage/>

Biomarkers of Aging

While many anti-aging interventions have demonstrated life-extending or other geroprotective effects in model organisms, practical limitations continue to hamper translation to the clinic. One problem is that the evaluation of aging changes and possible anti-aging remedies requires a comprehensive set of robust biomarkers.

Large-scale longitudinal programs like MARK-AGE have been launched to analyze changes in multiple biomarkers during aging and correlation between biological and chronological age. Several “aging clocks” able to predict human chronological age using various biomarkers have already been proposed. Methylation-based markers such as epigenetic aging clocks are currently the most accurate, while transcriptomics and metabolomics have shown to be less so.

Recent studies show that biomarkers of age-related pathologies could be used to evaluate senescence modifications based on the connection between age-related pathologies at the signaling pathway level. However, most of these biomarkers are not representative of the health state of the entire organism or individual systems and are not easily measured or targeted with known interventions.

Machine learning (ML) techniques, such as support vector machines (SVM), are routinely used in biomarker development and rapid increases in labeled data are enabling deep neural networks (DNNs). Methods based on deep architectures have outperformed classical approaches not only in image analysis, but also in solving a wide range of genomics, transcriptomics and proteomics problems.

Using Artificial Intelligence (AI), **Insilico Medicine** has developed a system that measures the biological age using readings found in a common blood test. Insilico Medicine calls it the Aging Clock, and it is based on biomarkers of aging found in our blood chemistry. Insilico Medicine says its number-crunching has yielded the most precise measure of a person’s biological age. To develop their algorithm, the company used AI techniques to analyze the blood tests of an international group of 130,000 people.

Sources: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4931851/>
<http://longevityfacts.com/ai-based-app-measures-bodys-aging-clock/>

Biomarkers of Aging

Vadim Gladyshev, Professor of Medicine at Brigham and Women's Hospital, Harvard Medical School:

"The use of the new tool to track human biological age may enable discovery of drugs and other interventions that target the fundamental process of aging, thereby delaying the onset of all chronic diseases at once, instead of targeting one disease at a time. The project has parallels with MouseAge, a tool for assessing biological age in mice, which we develop jointly with In Silico Medicine."

Insilico Medicine, Inc., a Baltimore-based company specializing in the application of artificial intelligence for drug discovery, biomarker development and aging research, announced in 2018 a publication of a research paper titled "Population-specific biomarkers of human aging: a big data study using South Korean, Canadian and Eastern-European patient populations" in The Journal of Gerontology. Insilico believe AI will transform biomarker development and drug discovery much sooner than most pharmaceutical companies and regulators expect. In the paper, the authors present a novel deep-learning based hematological human aging clock, a biomarker that predicts the biological age of individual patients.

In 2017 the company announced the launch of the Beta 1.0 version of YOUNG.AI. The first version was publicly unveiled on September 12th, 2017 at the 4th Aging Research for Drug Discovery Forum and the Artificial Intelligence and Blockchain for Healthcare Forum in Basel, Switzerland, 11-13 of September. The beta 1.0 version features deep learned photographic and basic blood biochemistry-based predictors of age as well as the ability to track drug and supplement intake.

Sources: https://www.eurekalert.org/pub_releases/2018-01/imi-apd011118.php
https://www.eurekalert.org/pub_releases/2017-09/imi-ant091117.php

Chapter V

Media and Conferences



UK Longevity Journalists



Natasha Loder



Andrew Jack



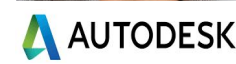
James Paton



Jeremy Kahn



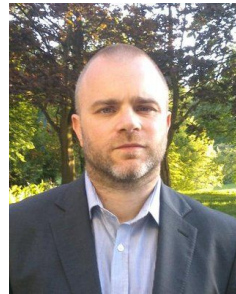
Hugh Pym



Justin Lawler



Maria Cohut



Richard Staines



Catharine Paddock



Fergus Walsh



James Gallagher



Hannah Crouch



Dan Kendall



Laura Mason



Tim Sandle



Haggerston Times

Edmund Ingham



Olivia Lerche



Peter Swindon



Thomas Tamblyn



THE CONVERSATION

Dominick Burton

The Rise of Longevity Journalism

Within the past 5 years we have witnessed an incredible surge of interest in the topic of Longevity.

In 2013 the topic of extending healthy longevity to the point of increasing the average life expectancy in developed nations to over 100 years, even as a distant future prospect, was considered futuristic and unusual.

Today, such an estimation is routinely seen as normal, and indeed, even perhaps conservative.

Besides an increase in the perceived credibility and feasibility of extending healthy longevity in the eyes of the public, the past 5 years has seen a dramatic rise in the perceived credibility of a legitimate Longevity Industry in the eyes of investors, business analysts, and reputable, conservative business media brands including The Economist and Financial Times (both of whom have held either conferences or panel discussions on the topic of the Longevity Industry). What was today seen as fringe science is now recognized and discussed not as an unusual prediction but as a normal state of affairs by financial entities and investment funds.

The past 5 years has also seen an increasingly obvious connection between advanced biomedicine and longevity, with the topic receiving mention to an increasingly prevalent extent in articles about biopharma and advanced biomedicine in general.

5 years ago TIME issued a cover asking "Can Google Solve Death?". If any other news outlet put out such a statement it would have been seen as wildly controversial, but because it was TIME, and they were talking about Google, it was met without controversy. Today, such magazine covers have become increasingly common.

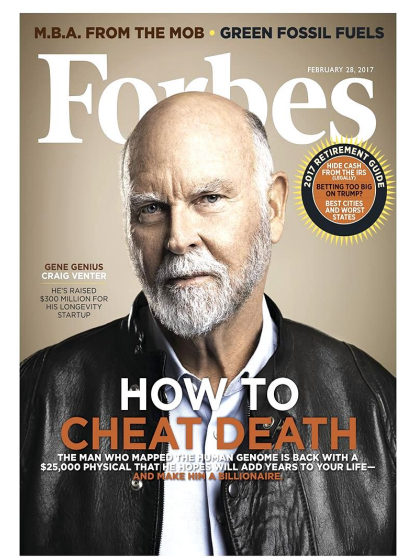
Relatively few years ago, to state that the life expectancy of developed nations could exceed 100 years was controversial. Today it is regularly perceived as normal. When Dmitry Kaminskiy launched his \$1M prize to the first person to reach their 123rd birthday, it was widely covered by media such as Forbes because it was seen as controversial.

The Convergence of Longevity & Advanced Biomedicine

Today, it doesn't sound so very unusual. Based on our analysis of both industry trends, trends within academia and the nonprofit sector, as well as in media trends, we can predict that in 5 years time it will be seen as normal to predict that developed nations life expectancy can exceed 120.

It has also become quite common in the past several years for top business media entities to organize conferences on the subject of Longevity, and for conservative BioPharma conferences to include panels on the topic of Longevity. This also highlights the fact that Longevity is increasingly finding its way into discussions and frameworks for the general BioPharma industry and advanced biomedicine.

Several years ago the topics were seen as similar and somewhat convergent, but this gap between Longevity therapeutics and advanced biomedicine in general is receding, and we can expect Longevity to take a place in the next few years as a standard and normal element of advanced biomedicine in general, and indeed, perhaps even on the forefront of advanced biomedicine. So too, have the topic of Longevity garnered increasing support from various government initiatives.



Top Business Media Entities Are Embracing Longevity

It has also become quite common in the past several years for top business media entities to organize conferences on the subject of Longevity, and for conservative BioPharma conferences to include panels on the topic of Longevity. This also highlights the fact that Longevity is increasingly finding its way into discussions and frameworks for the general BioPharma industry and advanced biomedicine. For instance, 2016 and 2017 saw the launch of conferences and panel discussions on the topic of Longevity by some of the world's most eminent business media brands, including The Economist and Financial Times.

For example, the Financial Times Global Pharmaceutical and Biotechnology Conference (held on November 10th, 2017) featured an Aging and Longevity Panel, with such participants as Aubrey de Grey, Chief Science Officer of SENS Research Foundation, Dmitry Kaminskiy (Managing Partner of Deep Knowledge Ventures, Alex Zhavoronkov (CEO of Insilico Medicine and CSO of the Biogerontology Research Foundation) and Joseph Antoun, Chairman of the Global Healthspan Policy Institute. The panel discussion focused on how close geroscience is from bringing practical and actionable results in extending healthy, productive longevity and how far the biopharma industry is from a paradigm shift from treatment to prevention.

The fact that this subject is being as part of the agenda at one of the biggest biotech conferences in UK and Europe, featuring the majority of global biopharma companies, is a very strong indicator that geroscience and ageing research is now entering the mainstream consciousness of the public, policy makers and healthcare industry thought-leaders.

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Longevity Journalism Comes of Age

Another leading example of Longevity conferences held by top business media brands includes two key conferences held by The Economist: Aging Societies and The Business of Longevity. *The Business of Longevity Summit* brings together the leading minds from governments, the private sector, health care, academia and think-tanks to discuss and debate how to help countries make the transition to older societies that are still healthy and productive.

The Economist's *Business of Longevity: Innovation for an ageing world* event ignited a global dialogue around opportunities in ageing and the most recent innovations driving the ageing market. *The Economist Event's Ageing Societies summit* in London gathered the key industry and political speakers from organisations including the World Health Organisation, Bupa, OECD, BT, Blackrock, PensionDanmark, HSBC, Danone and discussed the impact that the world's ageing populations will have on current and future generations.

The fact that such conferences are being targeted not just to Longevity scientists per se, but also traditional BioPharma journalists, analysts and executives also highlights an important trend: the increasing convergence of Longevity and traditional BioPharma and advanced biomedicine. Several years ago the topics were seen as similar and somewhat convergent, but this gap between Longevity therapeutics and advanced biomedicine in general is receding, and we can expect Longevity to take a place in the next few years as a standard and normal element of advanced biomedicine in general, and indeed, perhaps even on the forefront of advanced biomedicine. So too, have the topic of Longevity garnered increasing support from various government initiatives.

Give the profusion of interest in the topic of Longevity, and its murky past, where the term Anti-Aging was used to sell face creams rather than healthspan-extending therapies based on validated science, we urge journalists to cover the topic in an increasingly due-diligized, informed manner, using tangible metrics. We hope to see journalists covering Longevity not in the context of magic pills, but in the more realistic context of constituting validated science that is making progress toward the healthcare paradigm shift from treatment to prevention, with the potential to relieve the massive economic burden of demographic aging, and to more effectively treat the chronic ailments afflicting developed nations at their source, rather than articles about magic pills conferring immortality in one fell swoop.

Longevity & Blockchain

Tim Sandle a pharmaceutical microbiologist and technical writer shared his view in November 2017 writing for Digital Journal how Blockchain technologies can return control of data to patients. He concluded that:

“The advantages of blockchain are a secure and transparent distributed personal data marketplace to meet regulatory expectations and empowering patients by handing the control over personal data, such as medical records, back to the individual patients. This is through a blockchain providing a distributed and secure ledger of personal data. An added feature is, if patients are so minded, they could exploit a new data-driven marketplace and receive rewards for making their data available to the life science community and pharmaceutical companies.”



Richard Staines the Senior Reporter of Pharmaphorum reviewed the latest digital health stories on 6th April 2018 stating that :

“Five major US health companies have launched a pilot scheme assessing whether blockchain technology could improve data quality and reduce administrative costs. Humana, MultiPlan, Quest Diagnostics, and UnitedHealth Group’s Optum and UnitedHealthcare said the technology has the potential to improve patient care by providing patients with the latest treatments based on an up-to-date version of their care records. The pilot will examine how sharing data across health care organisations on blockchain technology can improve data accuracy, streamline administration and improve access to care. The pilot will also address the high cost of health care provider data management, testing the premise that administrative costs and data quality can be improved by sharing provider data inputs and changes made by different parties across a blockchain, potentially reducing operational costs while improving data quality. The blockchain tech will allow patients to securely encrypt their data and allow control over it, in the hope that most will sell it on to commercial research teams. There are also hopes that blockchain technology could also help to track and share data in clinical trials.”



Longevity & Artificial Intelligence

Jeremy Kahn the technology writer for Bloomberg wrote about the role of the AI in helping improving the patient's life. On 27th June 2018 Kahn wrote an article about Babylon Healthcare Services Ltd, the fast-growing mobile medical consultation service, which its artificial intelligence software, in tests, can assess common conditions more accurately than human doctors. He mentioned that:

“In addition to Babylon, others racing to create general diagnostic software include Ada, a startup with offices in Berlin and London that has launched a similar symptom-checker app to Babylon, HealthTap, in Palo Alto, California, Your.MD, a London startup that has created a health information app, and International Business Machines Corp. Babylon also pitted its software against a group of seven experienced primary care doctors on a set of 100 hypothetical cases developed by primary care experts at the Royal College of Physicians and the health systems at Stanford University and Yale University. Babylon’s software made the correct diagnosis in 80 percent of cases, while the human docs’ accuracy ranged from 64 percent to 94 percent, it said.”



Laura Mason the science writer for Technology Networks conducted an interview on January 16th, 2018 with Nick Lynch, Consultant at The Pistoia Alliance relating the use of AI within the life sciences industry. As well she wrote about what is the impact of AI in healthcare and the transformation of the laboratories, stating:

“The way in which scientist’s approach research has been drastically influenced by the advancement of technologies. The introduction of microfluidics and lab-on-a-chip technologies, adoption of paperless workflows, and the ever-increasing interest in cloud computing, machine learning, and artificial intelligence (AI) are just a few factors instrumental in the transformation of the laboratory. More specifically, influencing procedure efficiency, reproducibility, data collection, analysis and sharing, and much more.”



Top UK Longevity Conferences

FT Global Pharmaceutical and Biotechnology Conference 2017
Thriving Amid Uncertainty
London | 09 - 10 November 2017

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The Economist Events
AGEING SOCIETIES
Reaping the longevity dividend
November 29th-30th 2016,
St. Pancras Renaissance Hotel
London

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Advances in **Drug Discovery 2017**
6-7 March, Cambridge, UK
Stem Cells in Drug Discovery

The 15th Conference on
BULK ANNUITIES
Pension Buy-ins and Buyouts
Longevity Insurance and Reinsurance

The Ageing Cell
27-28 March 2017

Venture Capitalist Promises \$1M To First Person To Reach 123rd Birthday



Sarah Hedgecock, FORBES STAFF ✓

Apr 21, 2015 12:40 PM

8,556 👁

Venture capitalist Dmitry Kaminskiy thinks he has what it takes to lengthen people's life spans: a million-dollar prize, which he will award to the first person to beat the current longevity record and reach his or her 123rd birthday.



Jean Clement on her 122nd birthday. Jean died at the age of 122.5 years in 1997, and holds the record for the longest lived human in history.

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EXCLUSIVE: Moldovan oligarch pledges \$1 million prize to the first person that can live to be 123

- The large prize is being offered by businessman, Dmitry Kaminskiy
- He hopes money will help create a new group of 'supercentenarians'
- Jeanne Calment holds the record of oldest person, dying aged 122.5
- He has made a \$1m bet with Dr Alex Zhavoronkov on who will die first

By ZOLTAN ISTVAN FOR DAILYMAIL.COM

PUBLISHED: 18:02 EDT, 10 April 2015 | **UPDATED:** 20:32 EDT, 12 April 2015

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Anti-Aging Experts Made a Million-Dollar Bet on Who Dies Last



Zoltan Istvan

2/23/15 1:00pm • Filed to: LIFE EXTENSION



23.0K



5



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At January's JPMorgan Health Care Conference in San Francisco, Dmitry Kaminskiy (right) made a bet with Dr Alex Zhavoronkov (left), PhD, CEO of anti-aging company Insilico Medicine Inc. for a million dollars in stock who would live beyond 100 years of age

Even 10 years ago, the idea of reversing aging and conquering human mortality was still fringe science, seen as snake-oil research by most scientists, large pharmaceutical companies, and the public. What a difference a decade makes. Anti-aging science is poised to become a major industry in the biotech world.

To prove its promise, the first million-dollar bet on who can live the longest (for company stock—a signed deal likely made public later this week) was recently struck. It was made last month by two leading longevity advocates at the [biggest](#) annual healthcare investing event of the year, the JPMorgan Health Care Conference.

Dmitry Kaminskiy, senior partner of Hong Kong-based technology venture fund, [Deep Knowledge Ventures](#), and [Dr. Alex Zhavoronkov](#), PhD, CEO of bioinformatics company [Insilico Medicine Inc.](#) which specializes in

MAR 31, 2017 @ 09:30 AM 4,066

Brit Billionaire Jim Mellon Says Biotech Is The Best Investment Now



Patrick Cox, CONTRIBUTOR

[FULL BIO](#) ▾

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We are in the midst of an unprecedented change. Life spans have nearly doubled since the beginning of the 20th century. In addition, recent advances in computer technology have had a huge impact on biological sciences, which means this trend will accelerate.

Still, most people think that the process of aging will go on pretty much as it is now. They're wrong.

Discoveries have been made that will yield radical increases in healthy life expectancies. These

biotechnologies will change everything— the way we live... and the way we invest.

Longer, Healthier Life Spans Require Dramatic Change

MARKETS OPINION WORK & CAREERS LIFE & ARTS

Juvenescence aims to tap longevity 'money fountain'

UK start-up raises \$50m to finance development of anti-ageing therapies





JUN 29, 2018 @ 12:29 AM 2,516

Are There No Limits To Human Lifespan? Here Is What This Study Said



Bruce Y. Lee, CONTRIBUTOR
FULL BIO

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JUN 12, 2018 @ 12:50 PM

AI And Biotech Companies In The East And West Invest In Combating Aging



Robin Seaton Jefferson, CONTRIBUTOR

[FULL BIO](#) ▾

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The longevity and biotechnology industries are focusing on aging in a big way, and it's beginning to show.

The fields of Artificial Intelligence (AI) and regenerative medicine are putting their money on combating aging and age-related diseases, and the benefits are likely to be immense. While biotechnology and AI are relatively new concepts, the announcements of funding and collaboration yesterday by and between three companies are bringing those concepts that much closer to the forefront of medicine.

[Insilico Medicine](#), a Baltimore-based next-generation AI company specializing in the application of deep learning for target identification, drug discovery and aging research, yesterday announced a collaboration agreement with [WuXi AppTec](#), a leading global contract research outsourcing provider based in Shanghai, China, serving the pharmaceutical, biotech, and medical device industries.

Conferences on Longevity 2017-2018

Name	Date	Website
The Future of Ageing Conference 2017: Transforming Tomorrow Today	29 November 2017	https://www.eventbrite.co.uk/e/the-future-of-ageing-conference-2017-transforming-tomorrow-today-tickets-33422908820#
BULK ANNUITIES Pension Buy-ins and Buyouts Longevity Insurance and Reinsurance	26th - 27th Apr 2017	https://www.westminsterandcity.co.uk/conferences/15th-conference-bulk-annuities/
The Ageing in Common: an international perspective incorporating the inaugural Commonwealth Elders' Forum and the NFC UK Conference	16 – 18 April 2018	http://www.commage.org/2018-inaugural-elders-forum/
2nd Annual Advances in Immuno-Oncology Congress	May 15-16, 2017	https://www.immunooncology-congress.com/
Alzheimer's Association International Conference	July 16-20. 2017	https://alz.org/aaic/releases_2016/mon_930_ET.asp
Big Data in Biology and Health	September 25-27. 2017	https://coursesandconferences.wellcomegenomecampus.org/events/item.aspx?e=664
British Geriatrics Society Autumn Meeting 2017	April 26-28. 2017	https://eu.eventscloud.com/ehome/200170575
British Geriatrics Society Spring Meeting 2017	November 22-24. 2017	https://eu.eventscloud.com/ehome/200170574
British Society for Research on Aging 67th Annual Scientific Meeting	July 10-12. 2017	http://bsra.org.uk/bsra-2017-university-exeter/
Next Gen Immuno-Oncology Congress	March 14-15. 2017	http://www.mnmconferences.com/Next-Gen-Immuno-Oncology-Congress#MediaPartners

Conferences on Longevity 2017-2018

Name	Date	Website
Oxford Global 3rd Annual Cell/ Gene Therapy Congress	November 6-7. 2017	https://www.celltherapy-congress.com/
Stem Cells in Drug Discovery	March 6-7. 2017	http://selectbiosciences.com/conferences/index.aspx?conf=SCDD2017
The Ageing Cell	March 27-28. 2017	https://www.babraham.ac.uk/the-ageing-cell
Aging 2.0 OPTIMIZE	November 14-15, 2018	https://www.aging2.com/optimize-2018/
Financial Times Global Pharmaceutical And Biotechnology Conference	09 - 10 November 2017	https://live.ft.com/Events/2017/FT-Global-Pharmaceutical-and-Biotechnology-Conference-2017
World Agetech and Longevity Congress 2019	2019 (TBD).	n/a
Longevity Leaders Summit Series 2018 / 2019	November 2018	http://longevityleaders.com
The Economist's Ageing Societies 2016	29 - 30 November 2016	https://events.economist.com/events-conferences/americas/longevity/2016
The Economist's Business of Longevity: Innovation for an ageing world	07 December 2016	https://events.economist.com/events-conferences/americas/longevity/2016
Ageing Research and Geriatric Medicine	22nd -23rd April 2019	https://ageing.euroscicon.com/

Longevity Leaders

In our 2017 reports on the global longevity industry entitled Longevity Industry Landscape Overview Volume 1: The Science of Longevity & Volume II: The Business of Longevity, we took great care to highlight the fact that the main driver of progress in the Longevity industry both today and moving forward was not any specific technology, but rather the convergence of several specific technological MegaTrends.

At the time of those reports' publication, this was a minority position among a diverse and relatively fragmented global Longevity community. Today, less than one year later, this notion of a unified Longevity industry being accelerated forward by the synergetic integration of several specific technological elements (including industries not typically classified as falling within the Longevity industry) is gaining increasing attention.

For instance, an international organization (with one of their four headquarters in London, UK) called Longevity Leaders has recently taken up this position as one of their core operating principles.

Longevity Leaders conference aims to bring together a global network of leading minds and health leaders from life sciences, academia, technology, policy makers and the investment community, connecting knowledge, expertise, and investment in the Longevity and Aging industries.

Their activities are segregated into three distinct phases. **Phase 1** involves the launch of several conferences and summits in London, San Francisco, Boston and Zurich, including a Regional Leaders Summit, an annual World Agetech & Longevity Congress, with the aim of connecting world leaders from science, academia, government and financial services to converge upon the topic of Longevity. **Phase 2** involves the launch of an online platform to educate and connect emerging Longevity innovations with the investment community. **Phase 3** involves the formation of a Longevity Social Impact Fund, partnering with leading foundations and charities to optimize and coordinate strategic donations into vital emerging longevity research and to enable the support of high-priority areas with disproportionate gaps in funding and resources.

Source: <https://www.longevityleaders.com>

Longevity Leaders Conference



LONGEVITY
LEADERS



Phase 1

LONGEVITY LEADERS NETWORK

Regional Leaders Summits and an annual World Agetech & Longevity Congress brings together world leaders from science, technology, academia, government and financial services to address the emerging impacts of Longevity.



Phase 2

INSIGHT & INVESTMENT PLATFORM

An online platform educating and connecting emerging tech and life science innovation with the investment community, allowing individuals and organisations to make informed investments in a multi-trillion industry.



Phase 3

LONGEVITY & SOCIAL IMPACT FUND

Working with leading foundations and charities to donate to important research, supporting those individuals with the fewest resources and limited access to quality healthcare.

Source: <https://www.longevityleaders.com>

Longevity Industry Conferences by Top Business Media

In a similar vein, we are also seeing an increasing number of Longevity conferences targeting not scientists, but mainstream business personalities and entities, including analysts, investors and journalists, from some of the world's most reputable business media entities, including The Economist, Financial Times and even the World Economic Forum. For example, the Financial Times Global Pharmaceutical and Biotechnology Conference (held on November 10th, 2017) featured an Aging and Longevity Panel, with such participants as Aubrey de Grey, Chief Science Officer of SENS Research Foundation, Dmitry Kaminskiy (Managing Partner of Deep Knowledge Ventures, Alex Zhavoronkov (CEO of Insilico Medicine and CSO of the Biogerontology Research Foundation) and Joseph Antoun, Chairman of the Global Healthspan Policy Institute.

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Aging and Longevity

A growing sum of company and investment capital is making its way into the study of aging with the aim not only of extending healthspan -but also of studying the link between the processes of aging with a view to halting the onset of and the many diseases which afflict old age to include Alzheimer's, heart disease and chronic diseases such as diabetes. What lies ahead could be a future in which aging could be viewed as just another disease to be 'cured', resulting in a less crippling and costly burden from age-related drug development and for care within the healthcare system. How far along are we in better understanding aging, and when might we see the testing and potential approval of anti-aging drugs in humans? What are the practical and philosophical challenges which need to be addressed before the development of anti-aging drugs arrives in earnest?

Dmitry Kaminskiy, Co-Founder and Senior Partner, *Deep Knowledge Ventures*

Alex Zhavoronkov, CEO, *Insilico Medicine*

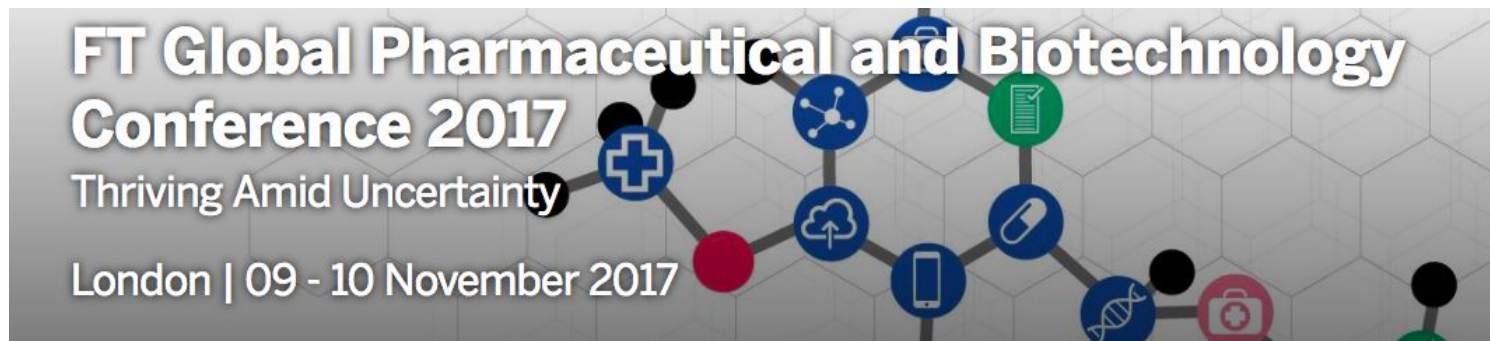
Joseph Antoun, Chairman & CEO, *L-Nutra* ; Chairman, *Global Healthspan Policy Institute*

Aubrey de Grey, Vice President of New Technology Discovery, *AgeX Therapeutics*

Moderator: **David Crow**, Senior US Business Correspondent, *Financial Times*

Longevity Conferences by Financial Times & The Economist

The panel discussion focused on how close geroscience is from bringing practical and actionable results in extending healthy, productive longevity and how far the biopharma industry is from a paradigm shift from treatment to prevention. The fact that this subject is being as part of the agenda at one of the biggest biotech conferences in UK and Europe, featuring the majority of global biopharma companies, is a very strong indicator that geroscience and ageing research is now entering the mainstream consciousness of the public, policy makers and healthcare industry thought-leaders. The Financial Times' biotech conference followed close on the heels of The Economist's The Business of Longevity Conference 2017 in Hong Kong on October 27th 2017, where Biogerontology Research Foundation Trustee Jim Mellon spoke on the subject of investing in the emerging longevity industry soon after the UK release of his new book *Juvenescence: Investing in the Age of Longevity*.



The Economist: Aging Societies & The Business of Longevity

- *The Business of Longevity Summit* brings together the leading minds from governments, the private sector, health care, academia and think-tanks to discuss and debate how to help countries make the transition to older societies that are still healthy and productive.

The Economist's *Business of Longevity: Innovation for an ageing world* event ignites a global dialogue around opportunities in ageing and the most recent innovations driving the ageing market.

- *The Economist Event's Ageing Societies summit* in London gathered the key industry and political speakers from organisations including the World Health Organisation, Bupa, OECD, BT, Blackrock, PensionDanmark, HSBC, Danone and discussed the impact that the world's ageing populations will have on current and future generations.

Ageing in society brings forth exciting new questions, fresh perspectives, and a necessary critical approach to key issues and The Economist Events' Ageing Societies is an authoritative platform to discuss this.



World Economic Forum: Prosperity in the Age of Longevity



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World Economic Forum Annual Meeting

17-20 January 2017
Davos-Klosters, Switzerland

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Prosperity in the Age of Longevity



World Economic Forum

Sessions

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- International Olympic Committee
- Promise or Peril: Decoding the Future of Work
- Prosperity in the Age of Longevity**
- Protectionism: Back to the Future?
- Raising Life Expectancy and Expectations
- Rebuilding Trust in the Healthcare Industry
- Redefining Europe's Security Agenda

Prosperity in the Age of Longevity

2017-01-18 06:30 Audio: [English](#)

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World Economic Forum: Prosperity in the Age of Longevity

The World Economic Forum engages the foremost political, business and other leaders of society to shape global, regional and industry agendas.

Longevity was an emerging theme at the 2017 World Economic Forum. Linda Fried, Dean of Public Health at Columbia University, said in her opening remarks at the workshop: *“Imagine what a long life spent in good health will unlock – it unlocks the opportunity to work, to fulfil individual goals and to make an impact as an older adult.”* The discussions at Davos exemplified the approach that is required to achieve a successful age of longevity through a strong collaboration between stakeholders across cultures, countries and generations. Today’s medicines can delay strokes and heart disease by decades. This trend will play havoc with working lives, pensions, healthcare costs and relationships. A recent World Economic Forum-Mercer survey predicts a leap in pension fund deficits worldwide, from \$70 trillion today to \$400 trillion by 2050.

The 48th World Economic Forum Annual Meeting in Switzerland on 23-26th January 2018 aims to rededicate leaders from all walks of life to developing a shared narrative to improve the state of the world. The programme, initiatives and projects of the meeting are focused on *Creating a Shared Future in a Fractured World*.



A screenshot of the World Economic Forum website. The top navigation bar includes "WORLD ECONOMIC FORUM", "Agenda", "Initiatives", "Reports", "Events", and "About". A search bar is on the right. The main heading is "World Economic Forum Annual Meeting" with the date "17-20 January 2017" and location "Davos-Klosters, Switzerland". Below this is a video player for "Prosperity in the Age of Longevity" with a play button. To the right is a "Sessions" sidebar with a search bar and a list of topics including "International Olympic Committee", "Promise or Peril: Decoding the Future of Work", "Prosperity in the Age of Longevity", "Protectionism: Back to the Future?", "Raising Life Expectancy and Expectations", "Rebuilding Trust in the Healthcare Industry", and "Redefining Europe's". At the bottom, there are social media share icons and a "Summary" tab.

Longevity Industry Conferences by Top Business Media

Furthermore, this is not a chance occurrence but a legitimate trend, given the [World Economic Forum's Prosperity in the Age of Longevity](#) panel discussion in Davos earlier this year, and *The Economist's* [Ageing Societies 2016](#) in London and [The Business of Longevity 2016](#) conferences in San Francisco.

The fact that very well-renowned and respected brands such as The Economist and Financial Times are now regularly hosting conferences and panel discussions on the subject of ageing shows the credibility building around the business of longevity. A mere three years ago optimism toward the real emergence of geroscience and longevity was very low, and it was nearly unthinkable that this topic could be included in the agenda of top-tier conferences whatsoever. But the outlook has now changed, and healthspan extension is now a logical topic of discussion for world-leading healthcare thought-leaders. The science of ageing has matured, and we are now witnessing the dawn and rise of the longevity industry.

- **Dmitry Kaminskiy, Managing Partner, Deep Knowledge Ventures**

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Abcodia



Abcodia is a clinical stage company engaged in the commercial development of novel, validated tests for the early detection of cancer. The Company's first product is the ROCA Test for the early detection of ovarian cancer, and it is also expanding its pipeline of early detection technologies for lung, colorectal and pancreatic cancer. Abcodia's offerings are based on expertise in measuring and modeling dynamic changes over time of serum-based biomarkers before cancer is clinically diagnosed.

It maintains exclusive commercial access to a biobank of 5 million samples donated from 200,000 individuals over a 10-year period and has its own CLIA-certified laboratory. Abcodia holds strategic collaborations with leading global organizations including Cancer Research UK, University College London and other academic and industry partners.

Website:	http://abcodia.com
Number of Employees:	1-10
Location:	London
Founded in:	2010
Sector:	Regenerative medicine
Total Funding Amount:	\$10.2M

Abzena plc



Abzena (AIM: ABZA) provides proprietary technologies and complementary services to enable the development and manufacture of biopharmaceutical products, a growing area that requires specialist knowledge and expertise. The Group has a global customer base which includes the majority of the top 20 biopharmaceutical companies as well as large and small biotech companies and academic groups.

The term “Abzena inside” is used by Abzena to describe products that have been created using its proprietary technologies and are being developed by its partners, and include Composite Human Antibodies™ and ThioBridge™ Antibody Drug Conjugates (ADCs). Abzena has the potential to earn future licence fees, milestone payments and/or royalties on “Abzena inside” products.

Website:	http://abzena.com
Number of Employees:	101-250
Location:	Cambridge
Founded in:	2002
Sector:	Personalized medicine
Total Funding Amount:	£40M

Adaptimmune



Adaptimmune Limited develops T cell therapies to treat cancer, human immunodeficiency virus, and infectious diseases. It utilizes the T cell to target and destroy cancerous or infected cells by using affinity T cell receptor proteins as a means of strengthening patient T cell responses. The company was incorporated in 2007 and is based in Abingdon, United Kingdom.

Stock Symbol: NASDAQ:ADA

Website:	http://adaptimmune.com
Number of Employees:	51-100
Location:	Oxton
Founded in:	2008
Sector:	Preventive medicine
Total Funding Amount:	\$149.5M

Aerobit Health



With 2/3rds of asthma deaths being preventable and the majority of severe asthma symptoms able to be significantly reduced, Aerobit sees creating tools to simplify the adherence and tracking of treatment as the biggest opportunity for improvement in the marketplace. Adherence with doctor-recommended treatment programs has long been recognized as a leading cause of unachieved outcomes. They see the upcoming revolution in digital health care as the turning point in delivering positive outcomes for UK asthma sufferers. They know that controlled asthma imposes far less of an economic burden than non-controlled asthma. Their strategies are focused towards improving adherence to doctor-recommended treatments.

Website:	http://aerobithealth.com
Number of Employees:	1-10
Location:	United Kingdom
Founded in:	N/A
Sector:	Preventive medicine

AHA Health



AHA goes beyond the ability to predict Health Risks and provides the ability to do something about it. Amazing technology for Patient Care that improves quality of care and drive the cost of care down.

Website:	https://ahahealth.io/
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Sector:	Personalized medicine

Akari Therapeutics



Akari is a clinical-stage biopharmaceutical company focused on the development and commercialization of innovative therapeutics to treat orphan autoimmune and inflammatory diseases. Akari's lead drug, Coversin is a second-generation complement inhibitor that acts on complement component-C5, preventing release of C5a and formation of C5b-9 (also known as the membrane attack complex or MAC). C5 inhibition is growing in importance in a range of rare autoimmune diseases related to dysregulation of the complement component of the immune system, including paroxysmal nocturnal hemoglobinuria (PNH), atypical Hemolytic Uremic Syndrome (aHUS), and Guillain Barré syndrome (GBS).

Stock Symbol NASDAQ:AKTX

Website:	http://akaritx.com/
Number of Employees:	11-50
Location:	London
Founded in:	2005
Sector:	Preventive medicine
Total Funding Amount:	\$87.5M

Alcove



Alcove was formed in 2014 with the aim to pioneer independent living for older and disabled adults. Revolutionising care and support by leveraging the power of today's consumer technology to empower users and provide care givers with better tools. Mostly, their customers just get on with their lives as normal - they don't have to do anything differently. If they do, they have locked down all their devices so they are super simple to use.

Website:	http://www.youralcove.com
Number of Employees:	11-50
Location:	London
Founded in:	2014
Sector:	AgeTech

Ally Smart Care



Ally Smart Care can help with early detection and treatment of falls, chest infections, UTIs and depression.

Website:	https://ally.is/
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Sector:	Preventive medicine

Altacor (Acquired by Esperante Ventures)



Altacor develops and brings to market specialist ophthalmic products designed for the needs of both ophthalmologists and patients.

From its headquarters in Cambridge UK, Altacor brings together skills in drug development with in-depth market knowledge and an understanding of the European regulatory environment, to create a portfolio of high quality, differentiated prescription medicines that set new standards in the sector.

Altacor's pipeline includes products for dry-eye, glaucoma, glaucoma surgery and ocular surgery.

Website:	http://www.altacor-pharma.com/
Number of Employees:	11-50
Location:	Berkshire
Founded in:	2005
Sector:	Regenerative medicine
Total Funding Amount:	£1.9M

AMO Pharma



AMO Pharma is dedicated to making a positive difference for people affected by serious and debilitating diseases, particularly rare or orphan diseases. To do this, we first work to understand the areas of unmet need and the experience of living with any disease we are targeting. We then use our extensive experience in drug development to identify and advance therapies that can significantly improve clinical outcomes while offering the strongest opportunities for approval. With drugs designed to reduce disease burden, slow disease progression or reduce many or all symptoms of a disease, our goal is to give patients an opportunity for improved health and quality of life. Our passion for drug development is strengthened and inspired by many personal connections to the rare disease community held by members of our senior team.

Website:	http://www.amo-pharma.com/
Number of Employees:	N/A
Location:	Wonersh
Founded in:	N/A
Sector:	Regenerative medicine
Total Funding Amount:	\$25M

aparito They provide wearable devices and disease-specific mobile apps to provide remote patient monitoring outside of the hospital environment.

This delivers meaningful, relevant, and real-time data between patients and clinicians in a way that actively supports and enhances diagnosis, treatment and drug development. By embracing digital health technology.

They connect patients to doctors - and to parents/ carers – via remote monitoring to support better patient outcomes, improve understanding of disease, and clinical trial outcomes.

Website:	https://www.aparito.com/
Number of Employees:	1-10
Location:	United Kingdom
Founded in:	2015
Sector:	Personalized medicine
Total Funding Amount:	£15K

Arcis Biotechnology



Arcis Biotechnology is focused on providing fast and convenient nucleic acid sample prep solutions. Obtaining genetic material from biological samples is a critical step which is often a time consuming and inefficient process. In less than 3 minutes with no prior sample preparation the Arcis DNA Prep range of products allow users to quickly and conveniently go from cellular material to downstream nucleic acid investigation without the need for traditional isolation or purification. The process requires no laboratory equipment and requires as little as 30µl of blood as a starting material. Arcis DNA products can be used on many different samples containing DNA including whole blood, plasma, urine, buccal swabs, and hair follicles.

Website:	http://www.arcisbio.com/
Number of Employees:	1-10
Location:	Warrington
Founded in:	2009
Sector:	Personalized medicine
Total Funding Amount:	£5.3M

Aridhia Informatics



Aridhia provides world leading biomedical informatics and analytic solutions to support stratified medicine and translational research, which will enhance understanding, diagnosis, prevention and treatment of chronic diseases. Aridhia believes that the integration and application of patient, clinical and genomic data represents a powerful opportunity to support clinical care across healthcare sectors, provide patients with the ability to take a more active role in their own care and provide information at a population level about disease trends, risk factors, impact of treatment and informed public health programmes. Working in close collaboration with experts in a clinical faculty model, Aridhia's multidisciplinary team provides a unique combination of expertise to address one of the world's most pressing health problems.

Website:	http://www.aridhia.com
Number of Employees:	51-100
Location:	Edinburgh
Founded in:	2008
Sector:	Personalized medicine
Total Funding Amount:	£1.1M

Arrayjet Ltd was established in 2000 with private equity from the Archangel Investors Ltd and the Scottish Government. The company developed and patented an inkjet technology to print biological samples onto solid substrates to create screening tools called microarrays. Arrayjet have been at the forefront of this field since commercialisation in 2006 and have a broad customer-base across 27 countries. Arrayjet has strong brand presence and a respected reputation for high-throughput inkjet printing systems, dependable customer service and assay development expertise. Arrayjet was originally an instrument business but began developing a contract service arm in 2010. In 2011 we launched Arrayjet Advance™ to offer a range of out-sourced services for assay development, printing and contract manufacturing. In 2016 we added Arrayjet Expertise™ to offer services for consultancy, project management and training.

Website:	https://www.arrayjet.co.uk/
Number of Employees:	11-50
Location:	Edinburgh
Founded in:	2000
Sector:	Personalized medicine



Everything we do is driven by knowledge to positively impact on what matters to people with arthritis.

Our long term commitment is to:

- **prevent** the onset of arthritis
- develop a **cure** for arthritis
- **transform** the lives of those with arthritis.

Too many people live with the pain, isolation and fatigue arthritis causes. This has to stop.

Arthritis Research UK has merged with Arthritis Care so that we can address this huge unmet need and do more for, and with, people with arthritis.

Website:	http://www.arthritisresearchuk.org
Number of Employees:	101-250
Location:	N/A
Founded in:	N/A
Sector:	Personalized medicine

Astex (Acquired by SuperGen)



Astex is a UK-based biotechnology company that discovers and develops novel small molecule therapeutics. Using its pioneering fragment-based drug discovery platform, Pyramida, Astex has built a pipeline of molecularly-targeted oncology drugs, of which three are currently being tested in clinical trials with others in discovery and pre-clinical development.

In addition to its proprietary research programs, Astex™s productivity in lead discovery has been endorsed through numerous partnerships with major pharmaceutical companies, including AstraZeneca, GlaxoSmithKline, Johnson & Johnson and Novartis.

Website:	https://astx.com/
Number of Employees:	51-100
Location:	Cambridge
Founded in:	1999
Sector:	Personalized medicine

Atlas Biomed Group



The Atlas DNA and gut microbiome tests evaluate your health status and provide personalised recommendations to improve wellbeing.

Website:	https://atlasbiomed.com/uk
Number of Employees:	51-100
Location:	London
Founded in:	2016
Sector:	Personalized medicine

Auriens



Some people use the phrase ‘over the hill’. At Auriens that just means picking up speed.

Through their beautifully designed properties, world-class services and exceptional healthcare provision, Auriens is dedicated to challenging and subverting the norms of post-retirement (later) living.

They see the advancing years as something to celebrate, and they value agefulness as they do intelligence, attitude, style and sophistication.

At Auriens, their mission is to provide inclusive, comprehensive, centrally located places to live later life to the full. That means the catering is exceptional, the Club and restaurant are stylish places to congregate, and the spa, therapy suites and library are all a joy to linger in. Every requirement, large or small, will be effortlessly satisfied to premium hotel standards and beyond.

Here age is more than just a number – it’s a rite of passage to a lifestyle that is as entertaining and enjoyable as it is comfortable.

Website:	https://www.auriens.com/
Number of Employees:	2-10
Location:	London
Founded in:	N/A
Sector:	AgeTech

Autism Biotech



Autism Biotech Ltd has a ground-breaking product: ASDtect, the world's first diagnostic test for early and reliable detection of autism spectrum disorder (ASD). Based on two fully owned and granted patents for peptide biomarkers for autism, ASDtect targets a huge and untapped market.

Website:	https://www.autism-biotech.com/
Number of Employees:	1-10
Location:	Belfast
Founded in:	N/A
Sector:	Preventive medicine

Autolus Limited



Autolus is a clinical-stage biopharmaceutical company developing next-generation, programmed T cell therapies for the treatment of cancer. Using a broad suite of proprietary and modular T cell programming technologies, the company is engineering precisely targeted, controlled and highly active T cell therapies that are designed to better recognise cancer cells, break down their defence mechanisms and eliminate these cells. Autolus has a pipeline of product candidates in development for the treatment of haematological malignancies and solid tumors.

Stock Symbol: NASDAQ:AUTL

Website:	http://www.autolus.com/
Number of Employees:	11-50
Location:	London
Founded in:	2014
Sector:	Personalized medicine
Total Funding Amount:	\$181.7M

Avalon AI



Avalon AI builds Deep Learning-based Computer Aided Diagnosis tools to facilitate the detection of brain degenerative diseases like Alzheimer's and enable better patient stratification in clinical trials.

We use Machine learning to automatically derive accurate brain features (e.g. the volume of the hippocampus) from brain scans and compare them to a normative population. We also provide handy 2D and 3D visualisations of brain features. This not only saves time to neuroradiologists but also empowers them to make highly accurate reports, by using the latest techniques and findings in neurosciences. We are currently running trials with select clinics in India, Pakistan and Ukraine.

Website:	http://avalonai.strikingly.com
Number of Employees:	51-100
Location:	London
Founded in:	2015
Sector:	Preventive medicine

Avita Medical



Avita also has the opportunity to receive up to \$37 million upon execution of specific contract options to further support clinical studies and post-market surveillance that could be potentially required by the FDA to expand the device to the pediatric population, the company said.

Stock Symbol ASX:AVH

Website:	http://www.avitamedical.com/
Number of Employees:	11-50
Location:	Wimbledon
Founded in:	1999
Sector:	Regenerative medicine
Total Funding Amount:	\$28.6M

Babylon Health



babylon delivers high quality healthcare via your mobile phone. babylon employs only the very best doctors and provides them with rigorous industry-leading training.

During video visits doctors listen and look carefully to diagnose you or your family member and then write prescriptions or refer you to a specialist if required. Patients rate each visit to ensure quality.

Their mission is the total re-invention of healthcare. They believe technology can be used to give everyone, everywhere, affordable quality medical care. That's why they are creating everyone's own personal health service.

Website:	https://www.babylonhealth.com/
Number of Employees:	251-500
Location:	United Kingdom
Founded in:	2013
Sector:	Preventive medicine
Total Funding Amount:	\$85M

BenevolentAI is one of the largest private AI companies in the world and the global leader in the development and application of AI for scientific innovation.

The company is applying artificial intelligence to develop new medicines for hard to treat diseases. It is the first fully integrated AI company with pharmaceutical discovery and clinical development capabilities. BenevolentAI's advanced technology is disrupting the pharmaceutical industry by lowering costs, decreasing failure rates and increasing the speed at which medicines are delivered to patients.

BenevolentAI currently employs 165 people who work in a unique, cross functional environment that incorporates leading edge data scientists, computer scientists, mathematicians and drug development R&D scientists working side by side. The company is headquartered in London with further offices in New York and Belgium. BenevolentAI's research facility is located in Babraham Science Park, Cambridge (UK).

Website:	http://benevolent.ai/
Number of Employees:	51-100
Location:	London
Founded in:	2013
Sector:	AgeTech
Total Funding Amount:	\$202M



Biogelx is a biomaterials company which designs and supplies peptide hydrogels for cell culture, precisely tuned to the requirements of the cell. These products have applications in fundamental cell research, toxicology/drug development and may ultimately be translated to cell therapy/regenerative medicine. The chemical and physical properties of the hydrogels match the characteristics experienced by cells within tissues, thus enabling the study and manipulation of cells in a realistic 3D environment which is simple, fully defined and tuneable.

The Company's patented hydrogel products are currently selling in the US, Europe and Asia.

The product's unique cell-matching capabilities clearly provide academic users, medical researchers and pharmaceutical companies with a serious alternative to competing 3D cell culture products.

Website:	http://biogelx.com/
Number of Employees:	1-10
Location:	Newhouse
Founded in:	2012
Sector:	Personalized medicine

Bioline



Founded in 1992 and headquartered in London, UK, Bioline is an evolving international company and our mission is to provide customers with a range of products which are fast and easy to use, guaranteed to work and developed by scientists who understand what our customers are trying to achieve so they can focus on their scientific goals. At Bioline, we constantly strive to improve and to deliver high quality products which are the result of our strong commitment and investment in science. Bioline, wholly owned by Meridian Bioscience Inc. (Nasdaq: VIVO), operates as one multi-cultural global team with strong values.

Website:	https://www.bioline.com/
Number of Employees:	251-500
Location:	London
Founded in:	1992
Sector:	Personalized medicine
Total Funding Amount:	\$903K

One in three of us will get cancer and increases in life expectancy indices will exacerbate this statistic in the future. Most current chemotherapeutics have devastating side effects including hair loss, nausea, weakened immunity and fatigue to name but a few.

BioMoti exists to transform the treatment of cancer patients by doing things differently. BioMoti seeks to transform the treatment of cancer by targeted delivery of therapeutics to the intracellular space of cancer cells; aiming to dramatically increase efficacy whilst reducing side effects.

Oncojans™ are a new class of therapeutic microparticles that target and gain entry to the interior of cancer cells where they slowly release drugs at the point of need whilst sparing healthy tissue. The Oncojan™ platform is compatible with a range of drug classes from small molecule therapeutics to larger biologicals.

Website:	http://www.biomoti.com
Number of Employees:	1-10
Location:	London
Founded in:	2009
Sector:	Preventive medicine
Total Funding Amount:	£75K

Blue Maestro



Blue Maestro is a leading designer and developer of connected products and solutions, from consumer devices through to their work with NHS England on the next generation of medicine adherence sensors. They have a number of innovative products and solutions under development, several that are patent pending. Meet some of Blue Maestro's management team below.

Website:	https://www.bluemaestro.com
Number of Employees:	1-10
Location:	Weybridge
Founded in:	2012
Sector:	AgeTech
Total Funding Amount:	\$410K



Braintrain20:20 is a groundbreaking cognitive science development company. Our first product, SleepCogni, is a proprietary pioneering electronic sleep aid device which winds you down to a sleep-ready state using audio, visual and tactile stimuli. We use personal bio-algorithmic data to drive the products responses, reducing the time taken to get to sleep and improving overall quality.

Website:	http://braintrain2020.com/
Number of Employees:	11-50
Location:	Sheffield
Founded in:	2015
Sector:	Regenerative medicine
Total Funding Amount:	£485K

BrainWaveBank



BrainWaveBank's neuroscience platform measures cognitive performance by monitoring brainwave activity while playing fun, engaging mobile games that test specific aspects of your cognitive health. By playing the games for just a few minutes a day, several times a week, a record of your cognitive health is created. Analytics allow you to understand how your performance varies over time and how it is affected by sleep, diet, and exercise, informing you how to make changes to your lifestyle that can optimise your cognitive health and help delay onset of age-related or illness-related cognitive decline.

BrainWaveBank was founded by Ronan Cunningham, Brian Murphy, Siggí Saevarsson and Urs Streidl in January 2015. It is based in Belfast, Northern Ireland.

Website:	http://www.brainwavebank.com
Number of Employees:	1-10
Location:	Belfast
Founded in:	2015
Sector:	Personalized medicine
Total Funding Amount:	£1M

C4X Discovery



C4X Discovery aims to become the world's most productive drug discovery and development company by exploiting cutting-edge technologies to design and create best-in-class drug candidates. The Company has two proprietary and synergistic software platforms "Taxonomy3®" and "Conformetrix" that provide a significant competitive advantage when combined with an experienced management team. "Taxonomy3®" is a human genetics analysis platform that utilises a unique mathematical approach to discovery and validation of drug targets for the treatment of a variety of diseases. "Conformetrix" determines the 3D shape of drug molecules from experimental in vitro data that enables the rapid design and discovery of novel and potent drugs for diseases with high unmet medical need across broad therapeutic areas. C4XD's drug discovery engine was further strengthened by the acquisition of technologies from Molplex Ltd, in 2016, which included a software-based system which combines chemoinformatics, computational chemistry and artificial intelligence to optimise the drug discovery process. We have a hybrid business model of wholly-owned programmes and partnerships with pharma, biotech and academics.

Website:	https://www.c4xdiscovery.com/
Number of Employees:	N/A
Location:	Manchester
Founded in:	2007
Sector:	Personalized medicine

Cambridge Biolabs



Millions of people all around the world use ineffective or unsuitable cosmetics every day because the off-the-shelf products currently available on the global cosmetic market do not correspond to the complex set of needs of every individual. This leads to inadvertent negligence and wrong choices due to lack of optimal solution. Skin condition deterioration ensues.

To overcome this we are developing Personal Cosmetic System consisting of more possible personalised formulations than people on Earth. After individual skin diagnosis aided by advanced software and hardware the optimal formula is worked out and created uniquely for the patient in question.

Our formulations are designed to deliver. Each personalised formula boasts a large number of active ingredients (20-40) thus providing unprecedented level of skin health benefits as compared to the 2-3 active ingredients present in most cosmetics currently available on the market.

Thanks to its uniqueness Personal Cosmetic System makes sure that nobody neglects some of his or her skin needs due to lack of choice and knowledge. It also ensures that, based on individual tolerance, unwanted substances be avoided and optimal results achieved.

Website:	http://www.cambridge-biolabs.com
Number of Employees:	1-10
Location:	Cambridge
Founded in:	2016
Sector:	Personalized medicine

Cambridge Oncometrix



Cambridge Oncometrix aims to save lives by enabling the early detection of prostate cancer. A condition that is likely to affect 1 in 8 men at some stage of their lives.

Cambridge Oncometrix is developing a non-invasive test that will allow men to check the health of their prostate regularly. A simplified version of the test will be available for home use. A more advanced version will be used in medical institutions.

This test will be capable of accurately detecting aggressive forms of prostate cancer at the early stages of its development.

Website:	http://www.camonx.org/
Number of Employees:	1-10
Location:	Haverhill
Founded in:	2012
Sector:	Preventive medicine

CareRooms



We are working with homeowners in your community to provide safe, comfortable CareRooms for convalescence as an alternative to a long hospital stay, to avoid admission into hospital and for short respite breaks. We transform unused spare rooms with our connected healthcare platform, create networks of trained Hosts and put quality of life at the heart of all we do.

Website:	https://carerooms.com/
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Sector:	Personalized medicine

CareZapp



For people who need care at home, whether as a result of ageing, disability or other needs - CareZapp helps connect providers and caring people, providing better insights through smart technologies to enable more effective and positive outcomes.

The CareZapp platform aggregates real-time data from best-of-breed in-home sensors and digital devices, utilised within our applications and analytics to provide meaningful notifications, alerts and better insights on a 24/7 year-round basis.

Our companion apps help to drive engagement within a holistic support network of caring professionals, family, friends, neighbours and community supports for better collaboration, coordination and self-management.

Website:	http://www.carezapp.com/
Number of Employees:	1-10
Location:	Dublin
Founded in:	2014
Sector:	AgeTech



The team of world-class scientists and biotechnology leadership is devoted to discovering breakthrough medicines that change the standard of medical care for patients. Sir Martin Evans, Nobel Laureate, and Ajan Reginald, former Global Head of Emerging Technologies at Roche, originally founded the company under the name Cell Therapy Ltd (CTL) in 2009 which was rebranded as Celixir in 2016.

Website:	http://www.celixir.com/
Number of Employees:	11-50
Location:	Cardiff
Founded in:	2009
Sector:	Regenerative medicine

Cell Guidance Systems



Cell Guidance Systems commercializes innovative technologies to accelerate and enable stem cell science. We are focussing on (1) the culture of human pluripotent stem cells and (2) the development of highly active, potentiated growth factors. (3) the commercialization of SINEUP technology. SINEUP allows upregulation of protein expression from target genes using an lncRNA transfected into the target cell. Cell Guidance Systems has offices in Cambridge, UK and San Diego, California.

Website:	http://www.cellgs.com
Number of Employees:	1-10
Location:	Cambridge
Founded in:	2010
Sector:	Regenerative medicine
Total Funding Amount:	£620.9K

Cell Medica



Cell Medica is a cell therapy company working on new techniques to cure human diseases based upon a treatment method called cellular immunotherapy. This technique involves harnessing and enhancing the power of the human immune system to fight disease.

Based on a number of academic studies, there is strong evidence that cellular immunotherapy can be used in a safe and effective manner to treat diseases ranging from infections to cancer.

Cell Medica is both an R&D company developing new forms of cell therapies and a cell production/processing company providing clinical-grade cell formulations to hospitals for the treatment of patients.

Website:	http://www.cellmedica.co.uk
Number of Employees:	11-50
Location:	London
Founded in:	2006
Sector:	Personalized medicine
Total Funding Amount:	\$191.8M

We dream of a world where all people can enjoy their 80s as much as they enjoyed their 20s. A world where people no longer suffer from age-related diseases. A world where we are all given more time to spend with our loved ones.

Website:	http://www.cellage.org/
Number of Employees:	11-50
Location:	Glasgow
Founded in:	2016
Sector:	Personalized medicine

CellCap Technologies Limited was formed in 2012 to exploit their research over the last 2 years in cell separation technologies.

CellCap is using the company's unique approach to cell capture to develop simple consumables for the Life Sciences research sector.

Website:	http://www.cell-capture.com
Number of Employees:	1-10
Location:	Bacup
Founded in:	2012
Sector:	Regenerative medicine
Total Funding Amount:	£75K

CellCentric's primary programme targets a deubiquitinase (DUB) enzyme which is strongly associated with prostate cancer, a leading cause of mortality among men. The target modulates the androgen receptor pathway and can potentially combat the multiple resistance mechanisms seen with recently approved prostate cancer drugs such as Xtandi and Zytiga.

The programme also has potential clinical utility in non-small cell lung, breast and colon cancer.

Website:	http://cellcentric.com
Number of Employees:	N/A
Location:	Cambridge
Founded in:	2003
Sector:	Regenerative medicine
Total Funding Amount:	\$32.6M

Celleron Therapeutics

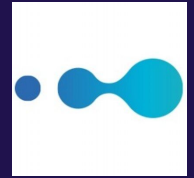


An innovative oncology healthcare company

The future of cancer therapy lies in the ability to match patients to treatments they will respond favourably to. Celleron has developed biomarkers using epigenetic techniques that match drugs to responsive disease. Their portfolio of technologies can be used to develop a new class of mechanism-based cancer drugs. Drugs that will improve the success rates of treatment, reduce the side effects in patients and deliver more cost effective healthcare.

Website:	http://cellerontherapeutics.com/
Number of Employees:	N/A
Location:	Abingdon
Founded in:	2005
Sector:	Preventive medicine

Cellesce



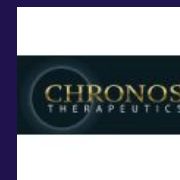
Cellesce Ltd is a biochemical engineering company based in Cardiff in the UK. Cellesce's expertise is in cell expansion which is currently focused on organoids.

Website:	http://www.cellesce.com/
Number of Employees:	1-10
Location:	Malmesbury
Founded in:	2013
Sector:	Regenerative medicine

Launched in November 2016, Cera is a homecare provider that uses digital and artificial intelligence to transform social care. It was co-founded by Dr. Ben Maruthappu and Marek Sacha. Through Cera's matching algorithm and automated scheduling systems, Cera is able respond to enquiries within the hour, and in 96% of cases start care on the same day when requested. Cera has significantly lower overheads compared to traditional care companies, allowing the company to pay carers up to 50% higher than the industry average, while still offering affordable rates for customers. Cera has received a number of awards including the Most Outstanding Digital Health Innovation of the Year, the LaingBuisson Dementia Care Award, the Best London Home Care Company at the Social Care Awards 2018, Disruptive Leader of the Year and Britain's Health Startup of the Year. It is a member of the PUBLIC GovStart programme.

Website:	http://ceracare.co.uk
Number of Employees:	11-50
Location:	London
Founded in:	2016
Sector:	Personalized medicine
Total Funding Amount:	\$21.1M

Chronos Therapeutics



Chronos Therapeutics' drug development scheme focuses in two main areas:

- Repositioning FDA approved drugs.
- Screening, discovery and development of novel proprietary drug candidates.

Current Targets

- Diseases of Ageing: Osteoporosis, Cancer and Sarcopenia.
- Neurodegenerative Diseases: Parkinson's Disease, Alzheimer's Disease, ALS and Orphan Synucleopathies.

Chronos Therapeutics' research is successfully advancing from pre-clinical stages of development for age-related disease treatments to clinical development.

Chronos' pioneering drug discovery and development platform the Chronoscreen has enabled the company to quickly gain proprietary positions in the regulation of cellular chronological lifespan.

Some of the most exciting and effective therapeutic approaches of the future will utilize our understanding of the biological programming of life-span and ageing that take place in every cell of our body. Harnessing this knowledge will lead to novel treatments for age related diseases such as Alzheimer's Disease, Diabetes, Cancer and Osteoporosis.

Website:	http://chronostherapeutics.com
Number of Employees:	11-50
Location:	Oxford
Founded in:	2009
Sector:	AgeTech
Total Funding Amount:	£8M

Cobra Biologics



Cobra Biologics is a leading international contract manufacturing organisation (CMO) providing biologics and pharmaceuticals for pre-clinical, clinical and commercial supply.

Cobra has three GMP approved facilities in Sweden and the UK, each with expertise tailored to serving our customers around the world. We offer a broad range of integrated and stand-alone contract development and manufacturing services for clinical trials and the commercial market.

As a trusted provider and a key partner in the drug development and commercialisation process, we take pride in our manufacturing excellence and comprehensive range of services to the pharmaceutical and biotech industries.

Cobra is a Contract Manufacturing Organisation (CMO) supporting the global life sciences industry in the development and manufacture of monoclonal antibodies (mAb), recombinant proteins, DNA, viruses, phage and cell line derived products and pharmaceuticals for clinical trials and commercial supply.

Over 15 years of track record in producing biologics and pharmaceuticals for use in pre-clinical to Phase III clinical trials and commercial supply has given our people a unique knowledge base as both manufacturer and also as service providers for the global life sciences market.

Website:	http://www.cobrabio.com
Number of Employees:	501-1000
Location:	Keele
Founded in:	1992
Sector:	Regenerative medicine
Total Funding Amount:	£2.6M

Cognition Kit



Cognition Kit is a platform that will enable doctors, scientists and the public to better understand and manage day-to-day brain health.

Website:	http://www.cognitionkit.com/
Number of Employees:	n/a
Location:	n/a
Founded in:	n/a
Sector:	AgeTech

Collagen Solutions



Collagen Solutions Plc is a global provider of medical grade collagen formulations and components for use in regenerative medicine, medical devices and in-vitro diagnostics.

Our capabilities include the provision of native, soluble and powdered collagen formulations and expertise in the development and contract manufacture of collagen components for use as tissue scaffolds and medical devices.

Collagen Solutions' unique offering extends beyond material supply and contract services as our highly skilled staff support customers through various stages of development and regulatory approval, establishing long-term commercial relationships.

Website:	http://collagensolutions.com
Number of Employees:	11-50
Location:	London
Founded in:	2012
Sector:	Regenerative medicine
Total Funding Amount:	£18M

Complete Care



Complete Care provides high acuity care at home to around 150 individuals with on-going complex clinical healthcare needs. The business employs around 650 personal care assistants (including registered nurses). This acquisition will complement Mitie's existing domiciliary care operations in England and Wales, which are primarily operated through MiHomecare.

Website:	http://www.completecure.co.uk/
Number of Employees:	N/A
Location:	Telford
Founded in:	1996
Sector:	AgeTech

CRISPR Therapeutics



CRISPR Therapeutics is focused on the development of transformative medicines using its proprietary CRISPR/Cas9 gene-editing platform. CRISPR/Cas9 is a revolutionary technology that allows for precise, directed changes to genomic DNA. They have licensed the foundational CRISPR/Cas9 patent estate for human therapeutic use from their scientific founder, Dr. Emmanuelle Charpentier, who co-invented the application of CRISPR/Cas9 for gene editing. CRISPR Therapeutics' vision is to cure serious human diseases at the molecular level using CRISPR-Cas9. The company is headquartered in Basel, Switzerland and has operations in London, UK.

Website:	http://crisprtx.com/
Number of Employees:	1-10
Location:	Cambridge
Founded in:	2013
Sector:	Regenerative medicine
Total Funding Amount:	£127M

CTRL Group



Ctrl Group is a team of designers, researchers, software developers and healthcare experts who work internationally with healthcare companies and providers who want to use new technology to improve people's health. We create products and services that are effective, engaging and safe.

Website:	https://www.ctrl-group.com/
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Sector:	Personalized medicine

We at Curam believe that you are the best person to choose your carer or personal assistant – our platform allows you to do this safely, easily and effectively. We have a 12.5% administration charge compared to a typical ISF support provider who will charge over 25% or a traditional agency that will charge up to 50% of the cost of care.

Website:	https://www.curamcare.com/
Number of Employees:	N/A
Location:	UK
Founded in:	2018
Sector:	Personalized medicine

Cytox have developed a simple genetic based blood test for the assessment of risk and diagnosis of Alzheimer's Disease in the very early stages. Alzheimer's Disease affects over 26 million people world-wide and is a growing condition as people live longer. There is currently no cure for Alzheimer's Disease, but there are large international initiatives underway to find treatments with many drugs in clinical development. Cytox are commercially launching their tests in conjunction with Affymetrix (part of Thermo Fisher Scientific) to support Pharmaceutical and Biotechnology companies developing novel therapeutics.

Website:	http://cytoxgroup.com
Number of Employees:	1-10
Location:	Manchester
Founded in:	2004
Sector:	Preventive medicine
Total Funding Amount:	£10.3M

Definigen



DefiniGEN was founded in April 2012 to industrialize the OptiDIFF stem cell production platform developed at the University of Cambridge, UK.

The company has world-leading expertise in the area of iPSC production and metabolic disease modelling. The application of these technologies in drug discovery provides pharmaceutical companies with more predictive in vitro cell products enabling the development of safer and more effective treatments. In addition the technology platform utilises fully defined and humanized conditions required for the development of regenerative medicine cellular therapies.

DefiniGEN builds on intellectual property and knowledge resident at the University of Cambridge Regenerative Medicine Department at Addenbrooke's Hospital and in addition has in-licensed the Yamanka induced pluripotent stem cell IP portfolio from iPS Academia Japan Inc.

Website:	http://definigen.com
Number of Employees:	11-50
Location:	Cambridge
Founded in:	2012
Sector:	Regenerative medicine
Total Funding Amount:	£5.1M

Destiny Pharma



Destiny Pharma is an innovative pharmaceutical company dedicated to the development of novel antimicrobial products.

Our XF series of compounds have a mechanism of action that is fundamentally different from all existing antibiotics. As the likelihood of resistance developing is very remote, they offer potential advantages in controlling the drug-resistant bacteria that are at the centre of a global healthcare crisis.

Website:	http://www.destinypharma.com
Number of Employees:	1-10
Location:	Brighton
Founded in:	1996
Sector:	Preventive medicine
Total Funding Amount:	\$37M

Diagnostic Healthcare



Diagnostic Healthcare Ltd, an Altrincham, UK-based diagnostic imaging company. Led by Liat Karni, managing director, and Michael Ringart, chairman, Diagnostic Healthcare has a network of centres and mobile units across the UK providing MRI scans, obstetric ultrasound, bone density scans (DEXA scan), cardiac testing, health screening and reporting services.

The company offers end-to-end integrated solutions, either as mobile services or located within hospitals, GP surgeries or dedicated community sites.

Website:	http://www.diagnostichealthcareltd.com
Number of Employees:	11-50
Location:	Altrincham
Founded in:	2004
Sector:	Preventive medicine
Total Funding Amount:	£1M

DrThom teamed up with their parent company LloydsPharmacy. LloydsPharmacy Online Doctor offers a wider range of treatment options, available at cheaper prices. Our NHS accredited doctors have helped treat over 1,000,000 patients in the UK for a variety of conditions.

Website:	http://www.drthom.com
Number of Employees:	N/A
Location:	London
Founded in:	2002
Sector:	Personalized medicine

Eagle Genomics



Eagle Genomics is an enterprise software solutions company whose products enable the management, orchestration and exploitation of genomics and other life sciences data. We help Life Science companies get the maximum value from their R&D data and we are delivering the information architecture for the genomics era. Our suite of software products radically reduces cost and time to complete research, enabling drastic productivity improvements.

Our architecture translates data sets into data assets, redefining the current paradigm in the industry, enabling the objective measurement of the value of digital assets and providing clarity on “return on information”. Our mix of expertise in biology, bioinformatics, data science and enterprise-class software engineering is unique in the field and has been applied over the last decade to solve our customers’ challenges in areas as diverse as drug development, personal hygiene and plant breeding.

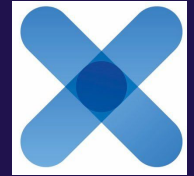
With global customers in the pharmaceuticals, fast moving consumer goods and agri-tech industries we understand the common challenges facing these industries in the handling of ever growing of data and information resources.

Website:	http://www.eaglegenomics.com
Number of Employees:	11-50
Location:	Cambridge
Founded in:	2008
Sector:	Regenerative medicine
Total Funding Amount:	\$7.7M

The Earlham Institute (EI) is a research institute focused on exploring living systems by applying computational science and biotechnology to answer ambitious biological questions and generate enabling resources.

Website:	http://www.earlham.ac.uk
Number of Employees:	N/A
Location:	Norwich
Founded in:	2009
Sector:	Personalized medicine

EnteroBiotix



EnteroBiotix, a privately held Scottish biotechnology company focused on using the body's own microorganisms to prevent and treat disease, has raised £500,000 in an oversubscribed seed round of investment. The financing was led by Equity Gap and supported by the Scottish Investment Bank, the investment arm of Scottish Enterprise.

Website:	http://enterobiotix.com
Number of Employees:	N/A
Location:	United Kingdom
Founded in:	2017
Sector:	Preventive medicine
Total Funding Amount:	£500K

Epistem Holdings



Epistem's specialist contract research services provide valuable support to drug discovery and development pipelines. Epistem's experienced and skilled technical team are dedicated to working with you to provide custom protocols and a personalised service of the highest standard.

Website:	http://epistemservices.com
Number of Employees:	51-100
Location:	Manchester
Founded in:	2000
Sector:	Personalized medicine
Total Funding Amount:	£2.5M



eScent® is a highly scalable platform technology that emits microdoses of mood-enhancing aromas at the right time, in the right place, depending on context

eScent® Contextual Technology for innovations in sensing and dispensing fragrances for digital healthcare, wellbeing, fashion, fragrance, retail applications.

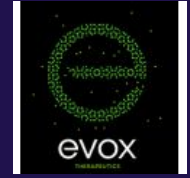
Founded by Dr Jenny Tillotson, Winston Churchill Fellow and Visiting Scholar at the Institute of Biotechnology, University of Cambridge.

Website:	http://www.escent.ai/
Number of Employees:	N/A
Location:	Cambridge
Founded in:	2004
Sector:	Preventive medicine

e-Therapeutics plc is a drug discovery and development company. It has developed proprietary computational systems to swiftly and accurately analyse and predict how medicines interact with cells in the body in hopes of optimizing the probability of identifying drug candidates with desirable efficacy and minimal side effects.

Website:	http://www.etherapeutics.co.uk
Number of Employees:	11-50
Location:	Hanborough
Founded in:	2003
Sector:	Preventive medicine
Total Funding Amount:	\$66.8M

Evox Therapeutics



Evox Therapeutics has built a comprehensive intellectual property portfolio encompassing key aspects of EV-based nucleic acid and protein delivery technology. Coupled with targeting technology and proprietary manufacturing and purification methods, the company is set to develop transformational therapeutics across a wide range of disease areas, using an equally wide array of therapeutic modalities.

Website:	www.evoxtherapeutics.com
Number of Employees:	11-50
Location:	Oxford
Founded in:	2016
Sector:	AgeTech
Total Funding Amount:	£10M

Freeline Therapeutics



Freeline Therapeutics is a biopharmaceutical company that develops liver directed gene therapies for bleeding disorders and other diseases. Its therapies are based on next-generation proprietary AAV vector platform, with its lead program being a gene therapy to treat haemophilia B.

Freeline Therapeutics was founded in 2015 and is headquartered in London, England.

Website:	http://www.freelinetx.com/
Number of Employees:	11-50
Location:	London
Founded in:	2015
Sector:	Personalized medicine
Total Funding Amount:	\$155.9M

Genedrive Plc



Genedrive plc is a commercial stage medical devices company, targeting opportunities in infectious diseases, biosurveillance, and animal applications. Our Genedrive® system is positioned to offer lower cost, easy to use, point of need or clinic-based molecular diagnostic tests via a 'razor/razor blade' business model across an increasing range of applications. Genedrive® is rapidly reconfigurable for specific assays and is suitable for use outside a traditional hospital setting. The system analyses nucleic acids from fresh or stored samples to provide rapid diagnosis and decision making.

Website:	http://www.genedriveplc.com/index.php
Number of Employees:	N/A
Location:	Manchester
Founded in:	2000
Sector:	Personalized medicine
Total Funding Amount:	\$8M

Give & Take Care



Give&TakeCare (G&TC) is a Community Interest Company, based at Brunel University London. The G&TC project is funded by Innovate UK, the government's Innovation Agency for our initial term.

Our aims are:

- To promote person-centred care for older adults (60+) in local communities
- Alleviate issues of loneliness and isolation
- Improve the prospects of care for future generations
- Reduce the ongoing care crisis by expanding the project across the UK

Website:	https://www.giveandtakecare.co.uk/
Number of Employees:	N/A
Location:	UK
Founded in:	2015
Sector:	AgeTech

Graphnet Health



Graphnet Health was formed over 20 years ago and is today the UK's no.1 leading supplier of integrated care record software to the NHS and care services. We are part of the System C and Graphnet Care Alliance.

Website:	https://www.graphnethealth.com/
Number of Employees:	N/A
Location:	UK
Founded in:	N/A
Sector:	AgeTech

GW Pharmaceuticals



GW Pharmaceuticals was founded in 1998 and is listed on both the NASDAQ Global Market (GWPH) and AIM, a market of the London Stock Exchange,. GW is licensed by the UK Home Office to work with a range of controlled drugs for medical research purposes. The Group's lead programme is the development of a product portfolio of cannabinoid prescription medicines to meet patient needs in a wide range of therapeutic indications, including Sativex® Oromucosal Spray and Epidiolex® for childhood epilepsy.

Website:	http://gwpharm.com
Number of Employees:	251-500
Location:	Wiltshire
Founded in:	1998
Sector:	Regenerative medicine
Total Funding Amount:	\$268.1M

Healx is a biotechnology company that develops and offers new therapeutic solutions for patients with rare diseases. The company offers Rareomics, a tool that helps researchers, charities, and individuals keep up with the latest scientific literature on many rare diseases. It also offers Rarepurposing that helps identify existing drug candidates which can help improve the quality of life of patients with rare diseases. Healx was founded in 2014 and is based in Cambridge, United Kingdom.

Website:	http://healx.io/
Number of Employees:	1-10
Location:	Cambridge
Founded in:	2014
Sector:	Personalized medicine
Total Funding Amount:	£1.5M

Too much emphasis is placed on 'doing health' to older people and not enough on creating joy and purpose first, which in turn creates the motivation for self-care and improving personal health and wellbeing'. Our value proposition centres around a physical device that internet enables any TV to allow older people to connect with family and friends in an easy and fear-free manner and in doing so reduces the widening gap of social and digital exclusion. This improved connectivity is the catapult to empowering them to use our platform for self-care especially around falls prevention and other pressing health issues.

Website:	http://www.hellodaisy.org
Number of Employees:	1-10
Location:	London
Founded in:	2017
Sector:	AgeTech

Heptares Therapeutics



Heptares Therapeutics is a drug discovery company focused on novel small-molecule drugs targeting G-protein-coupled receptors (GPCRs), the largest family of druggable targets.

The Company has developed a unique, transformational and proprietary technology for making purified, stabilised and functional GPCRs (known as StaRs, Stabilised Receptors), overcoming a major limiting factor to the development of new drugs targeting this group.

Website:	http://www.heptares.com
Number of Employees:	11-50
Location:	Welwyn Garden City
Founded in:	2007
Sector:	Personalized medicine

Heterogeneous



Heterogeneous is a user-centric genetic data marketplace that connects individuals directly to the research world. It acts as ethical brokers to facilitate a direct connection between you and research institutions.

The company was founded in 2016 and is headquartered in Cambridge.

Website:	http://heterogeneous.co.uk/
Number of Employees:	N/A
Location:	Cambridge
Founded in:	2017
Sector:	Personalized medicine
Total Funding Amount:	£5M

Horizon Discovery



Horizon Discovery Group PLC is a UK life science company that uses gene editing and gene modulation platforms to produce cells, applying them in research and clinical applications that advance human health. The Company's gene editing and gene modulation platform, are able to alter almost any DNA sequence or RNA transcription, has generated a catalogue of over 1,000,000 cell and reagent products that help researchers recapitulate the genetic and protein anomalies found in diseases like cancer. These models have been adopted by c12,000 organizations to better understand of the predictors and drivers of disease and drug response, and by Horizon in a range of services offered to customers, as well as in the Company's own research R&D pipeline.

Website:	http://www.horizondiscovery.com
Number of Employees:	251-500
Location:	Cambridge
Founded in:	2007
Sector:	AgeTech

Howz analyses electricity usage to understand an elderly person's use of everyday objects, learning what is normal activity and alerting the family when things look out of the ordinary.

Website:	http://www.howz.com
Number of Employees:	N/A
Location:	Manchester
Founded in:	N/A
Sector:	AgeTech

hVIVO, a specialty biopharma company with clinical testing capabilities, is pioneering a human-based analytical platform to accelerate drug discovery and development in respiratory and infectious diseases.

hVIVO changed its name from Retroscreen Virology in April 2015. The business is a plc quoted on the AIM London Stock Exchange (ticker 'HVO').

Website:	http://hvivo.com
Number of Employees:	501-1000
Location:	London
Founded in:	1988
Sector:	Personalized medicine



iamYiam is a preventive health hub that leverages science, genetics, and lifestyle data to create personalized activities and nutrition plans.

iamYiam delivers personal health plans through science-proved preventive actions. The company's mission is to help their clients select and book the best preventive experiences tailored precisely to who they are (all the way down to their genetic makeup) and the goals they want to achieve - powered by Ycloud, their world class technology platform.

The company's proprietary algorithm provides provides personalised health recommendations supported by scientific research and genetic profiling, to help clients select exactly what is best for their health and well-being from a global network of highly recommended practitioners.

Website:	http://www.iamYiam.com/
Number of Employees:	11-50
Location:	London
Founded in:	2016
Sector:	AgeTech



Around the world, patients with unmet medical needs are frequently driven to seek access to medicines outside the clinical trial and commercial setting. Idis is the leading expert in developing, implementing and managing global Managed Access Programs by which pharmaceutical and biotechnology companies and healthcare providers can respond to the needs of these patients.

Idis has over 27 years experience of partnering with pharmaceutical and biotechnology companies to create regulatory-compliant, ethical access to medicines for healthcare professionals and their patients with unmet medical needs. Since 1987, Idis has developed and managed access to thousands of medicines from virtually every therapeutic category, impacting the lives of hundreds of thousands of patients. Around the world, a variety of terms are used to describe these programs including “expanded access”, “named patient”, “ATU”, “compassionate use”, and “early access”.

Website:	http://idispharma.com
Number of Employees:	101-250
Location:	Weybridge
Founded in:	1987
Sector:	Personalized medicine



ImmuPharma focuses in developing pioneering and novel drugs in specialist therapeutic areas where there is a distinct lack of existing treatments, avoiding primary care (diseases treated by GPs) where many treatments exist. This is consistent with the trends in the pharmaceutical industry.

Since our foundation, our research strategy has been to work closely with the largest fundamental research organisation in Europe, the Centre National de la Recherche Scientifique, (CNRS) in France. This collaboration enables us to access innovative research with substantial embedded value at a relatively low cost, and to work with many leading scientists and doctors. ImmuPharma has exclusive rights to all its intellectual property assets.

Website:	http://www.immupharma.org
Number of Employees:	1-10
Location:	Westminster
Founded in:	1999
Sector:	Personalized medicine
Total Funding Amount:	\$12.6M

IntelliHep



IntelliHep is a spin-out company developing novel drugs for Alzheimers disease and cancer.

The company is untapping the potential of heparin-based therapeutics in biomedical applications including neurodegeneration and cancer. IntelliHep's compounds have further potential applications in inflammation, angiogenesis, wound healing, regenerative medicine and infectious diseases. IntelliHep is exploiting novel technologies and intellectual property to deliver new heparin-based glycans as novel drug leads for specific diseases including Alzheimer's disease and cancer. This is being achieved through in-house R&D and the development of strategic collaborative alliances with external partners.

IntelliHep has developed from work initiated by the Founders at the Universities of Birmingham and Liverpool, and is currently based in the MerseyBio incubator at Liverpool University.

Website:	http://www.intellihep.com/
Number of Employees:	N/A
Location:	Liverpool
Founded in:	N/A
Sector:	Regenerative medicine



Invizius is developing treatments to help hemodialysis patients live longer, feel better, and suffer fewer cardiovascular complications.

“Despite significant improvements in the quality and efficacy of hemodialysis therapy in recent years, cardiovascular disease (CVD) remains the leading cause of death for dialysis patients. Today, almost half of all dialysis patients die from cardiovascular complications, and life expectancy on dialysis is just one-third of normal. With its proprietary H-Guard™ technology, Invizius is addressing the side effects of hemodialysis to help patients feel better, and suffer fewer cardiovascular complications.”

Website:	https://www.invizius.com/
Number of Employees:	N/A
Location:	Edinburgh
Founded in:	2017
Sector:	Preventive medicine
Total Funding Amount:	£1.1M

Jellagen Pty Ltd is a Med-Tech company offering high grade native collagen sourced from jellyfish. Our jellyfish collagen is applicable for tissue engineering, regenerative medicine, stem cell research and a wide variety of cell culture application. We currently supply native collagen for cell culture research supplied in solution or powder.

Website:	http://www.jellagen.co.uk/
Number of Employees:	1-10
Location:	Pembroke Dock
Founded in:	2013
Sector:	Regenerative medicine
Total Funding Amount:	£5.7M

Kalgera is an award winning concept for a digital personal finance manager tailored to the needs of older people.

Every year 5 million older people in the UK fall victim to scams and this forms a large portion of the £38 billion lost each year in the UK to fraud. Kalgera means "good old-age" in Ancient Greek and we want to change this situation and are on a mission to safeguard older people and help them limit financial losses. Kalgera will use Open Banking regulation (also known as Open APIs) and cognitive neurology research to analyse past and present financial behaviour across all financial institutions. Kalgera then uses that data to detect and alert older people and their loved ones to unusual activity so action can be taken to prevent recurrent scams.

Website:	http://www.kalgera.com
Number of Employees:	1-10
Location:	N/A
Founded in:	2016
Sector:	AgeTech



Kareinn is a care planning and daily record system and so much more.

Kareinn helps you utilise technology to ease the burden of evidencing best practice care to the regulators, retain high quality staff and shift the focus from staying up to date to staying ahead of the curve. We have designed our system to capitalize on the data you already gather to support you and your residents with timely insights.

Website:	www.kareinn.com
Number of Employees:	N/A
Location:	N/A
Founded in:	2015
Sector:	AgeTech



Kemuri K-Sockets are designed for the kitchens of people who reject wearables, don't accept changes to their established routines and are beginning to decline in their activities of daily living. Machine learning automatically recognises patterns of movement, eating and drinking before checking every hour for significant changes. After detecting many changes, Kemuri sends alerts to 24/7 alarm response centres, family members or carers. They then take action, depending on the underlying reason for the alert.

Website:	http://www.kemurisense.com/
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Sector:	AgeTech



Kraydel is a small, plug and play device enabling the elderly to age safely at home. Packed with sensors, it utilises machine learning to provide 24 hour cover and alerts.

Website:	http://www.kraydel.com
Number of Employees:	N/A
Location:	Belfast
Founded in:	N/A
Sector:	AgeTech
Total Funding Amount:	£1.2M



Lab21 is a rapidly growing healthcare diagnostics business. The company's vision is of providing personalised diagnostic testing for disease identification, disease predisposition and personalised medicine to protect people from the health problems of tomorrow. We believe that 'prevention is better than cure' and aim to provide information that helps to protect people from their health problems of tomorrow. Lab 21 Clinical Laboratory supports healthcare providers and the pharmaceutical and biotechnology industries with technically advanced testing services from its accredited facilities in Cambridge, UK.

The Lab 21 team's experience and know-how is coupled with a rapidly growing portfolio of molecular and viral diagnostics, plus next generation sequencing, pharmacogenetic and patient profiling tests, which all use cutting-edge technology. This unique combination adds value to pharmaceutical, diagnostic and biotech partners – and directly to clinicians or healthcare providers as they treat and monitor their patients. As we move towards truly personalised healthcare, the Lab 21 team contributes today – delivering high-quality information on drugs and patients that provides real clinical insight.

Website:	http://lab21.com
Number of Employees:	51-100
Location:	Cambridge
Founded in:	2005
Sector:	Personalized medicine

With more than 1 billion people worldwide living with some type of chronic pain, a large unmet medical need for safe and effective analgesics exists. Traditional non-steroidal anti-inflammatory drugs (NSAIDs) are the most widely used drugs to treat pain and inflammation associated with osteoarthritis, but their use is limited by adverse effects on gastrointestinal and platelet function, as well as increased cardiovascular liability.

Levicept Ltd is an asset-centric UK-based biotechnology company developing a novel, safe and efficacious biological therapy (LEVI-04 [p75NTR-Fc]) for the treatment of chronic pain. We are progressing LEVI-04 to phase I clinical trials to test its efficacy and safety in patients with osteoarthritis.

Website:	http://www.levicept.com/
Number of Employees:	1-10
Location:	Sandwich
Founded in:	2012
Sector:	Personalized medicine
Total Funding Amount:	£12.4M

Lifeline 24



Lifeline24 provide personal alarms for the elderly, disabled and frail within the UK. Our Lifeline Alarms are monitored 24/7 and can provide peace of mind for the whole family. Order online or over the phone today.

Website:	https://www.lifeline24.co.uk
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Sector:	AgeTech

LIFNano Therapeutics



LIFNano Therapeutics was founded in 2013 as a spin-out from the University of Cambridge, progressing to a clinical stage Nano-Bio-Med company specifically focused on targeted delivery of the biologic, Leukaemia Inhibitory Factor (LIF)..

Website:	http://www.lifnano.com/
Number of Employees:	1-10
Location:	Cambridge
Founded in:	2015
Sector:	Preventive medicine
Total Funding Amount:	£1M

LIFT BioSciences



LIFT BioSciences is a socially-minded Biotech start-up developing a portfolio of potentially life-saving immuno-oncology cell therapies for different solid tumours using its innate immunity platform, known as Leukocyte Infusion Therapy (LIFT). LIFT BioSciences Ltd was set-up with Prof Zhen Cui of Wake Forest University, a leading pioneer in LIFT, following his discovery of a cancer resistant (SR/CR) mouse that proved to have transferable innate immunity. The goal is to create a Cell Bank with the potential to cure cancer, using Leukocyte Infusion Therapy (LIFT).

Website:	http://www.liftbiosciences.com/
Number of Employees:	N/A
Location:	London
Founded in:	2016
Sector:	Personalized medicine
Total Funding Amount:	£306K

Memrica



Memrica Prompt is a digital back up memory, which helps people live well with conditions such as early dementia, mild cognitive impairment, strokes or brain injuries.

Website:	www.memricaprompt.com
Number of Employees:	1-10
Location:	Birmingham
Founded in:	2013
Sector:	AgeTech

Methuselah Health



Methuselah Health is a drug discovery company founded in 2015 by Index Ventures to study the role of proteome instability in a number of human diseases linked to ageing.

Website:	www.methuselah-health.com
Number of Employees:	N/A
Location:	Cambridge
Founded in:	2015
Sector:	AgeTech

Michelson Diagnostics



Michelson Diagnostics is the developer and manufacturer of products based on Multi-Beam Optical Coherence Tomography (OCT), the uniquely powerful, innovative optical imaging technology that is capable of imaging living tissue microstructure at $< 10 \text{ \AA}\mu\text{m}$ resolution, in real time, to depths of 1 mm or more.

Website:	http://www.md-ltd.co.uk
Number of Employees:	11-50
Location:	Orpington
Founded in:	2006
Sector:	Preventive medicine
Total Funding Amount:	\$10.8M

Micrima



Micrima Ltd. spun out from research at the University of Bristol. The Micrima team is developnig radio-wave technology for detecting breast cancer. The technology is non-invasive, non-ionising and inexpensive.

The imaging technology has received extensive validation in the laboratory and is now undergoing first human use trials.

Website:	http://www.micrima.com
Number of Employees:	1-10
Location:	Bristol
Founded in:	2005
Sector:	Preventive medicine
Total Funding Amount:	\$18.8M

MiiCARE



Micrima develops a non-invasive and a non-ionizing radio wave technology for detecting breast cancer.

Website:	http://miicare.co.uk/
Number of Employees:	N/A
Location:	London
Founded in:	N/A
Sector:	AgeTech

Minatx



Harnessing the innate mechanism of gene activation, MiNA Therapeutics' platform enables the development of new medicines that restore normal function to patients' cells. We are applying our technology and clinical know-how to transform the therapy landscape of severe liver diseases. Our initial product candidate will achieve clinical proof of concept in 2017.

Website:	http://www.minatx.com
Number of Employees:	1-10
Location:	London
Founded in:	2008
Sector:	Personalized medicine

Molecular Vision



Molecular Vision is an optical detection company that offers a platform technology solution for versatile optical detection in a portable format. It carries an integration of low-cost organic light emitting diodes and organic photodetectors with analytical devices. This enables the realization of hand-held disposable medical diagnostics devices for point-of-care testing. Additional applications for the portable quantitative analytical devices include in-the-field veterinary testing, food and plant testing, environmental monitoring, and homeland security. Molecular Vision was founded in 2001 and is based in London, United Kingdom.

Website:	http://www.molecularvision.co.uk/
Number of Employees:	11-50
Location:	London
Founded in:	2001
Sector:	Personalized medicine
Total Funding Amount:	\$500K

Mologic



Two quirky scientists vowed to make the world a better place. After learning their trades in some of the world's biggest scientific organisations, Paul and Mark Davis (father and son team with a striking resemblance to Pinky and the Brain established Mologic to do as much good as possible in healthcare and education. They want to improve patient care and quality of life, and break new ground in exciting fields of research (unlike Pinky and the Brain who wanted to take over the world).

Website:	http://mologic.co.uk/
Number of Employees:	11-50
Location:	Thurleigh
Founded in:	2003
Sector:	Personalized medicine
Total Funding Amount:	\$9.4M

Monica Healthcare



Based in the United Kingdom, Monica Healthcare is developing a series of innovative wearable devices that will use wireless technologies to facilitate globally accessible obstetric services in the home and hospital. The patented technology is based on the acquisition of electro-physiological signals that can be passively detected by electrodes positioned on the maternal abdomen.

Website:	http://www.monicahealthcare.com
Number of Employees:	11-50
Location:	Nottingham
Founded in:	2005
Sector:	Preventive medicine
Total Funding Amount:	\$5.9M



Based in Cambridge (UK), Mursla is a startup developing a diagnostic device that leverages proprietary nanostructures to significantly improve cancer detection. Our technology has the potential to simplify the whole cycle of cancer management through utilizing a novel, non-invasive procedure called liquid biopsy.

We provide a competitive and differentiated proposal with superior predictive power potential by identifying panels of circulating wild-type and mutant proteins in blood at the point-of-care. Proteins are the key mediators of regulated or unregulated cellular activities in contrast to circulating nucleic acids assessed by Next-Gen Sequencing Technologies.

Website:	http://mursla.com
Number of Employees:	1-10
Location:	Cambridge
Founded in:	2017
Sector:	Preventive medicine
Total Funding Amount:	\$900K

Nanokick Technologies



Nanokick Technologies develops a spin-out, focussing on nanovibrational bioreactor technology for bone regeneration from stem cells.

Nanokick Technologies is an emerging spinout from the Universities of Glasgow and West of Scotland. The company's novel process technology utilizes nanoscale vibration as a means of converting adult stem cells into bone building cells (osteoblasts). This presents potential products for academia, drug discovery and even clinical use.

Website:	http://www.nanokick.com/
Number of Employees:	N/A
Location:	Glasgow
Founded in:	N/A
Sector:	Regenerative Medicine

nanoTherics gene transfection studies have shown a significant performance enhancement over the best non-viral techniques currently on the market, demonstrating high levels of transfection whilst, importantly, maintaining the viability of the transfected cells. These two key attributes afford a significant competitive advantage over currently available systems.

nanoTherics's mission is to position its novel gene transfection technology as the new 'gold standard' for transfection, underpinning the research and development of current and future gene therapy programmes.

Website:	http://www.nanotherics.com
Number of Employees:	11-50
Location:	Stoke-on-trent
Founded in:	2007
Sector:	Personalized medicine
Total Funding Amount:	£1.1M

Nemaura Pharma



A private specialist biotech company, Nemaura Pharma is strategically positioned to work with global pharmaceutical companies, as well as new biotechnology companies, to successfully bring both new and old drugs to patients in superior delivery formulations and systems. Ultimately, we aim to improve patient lifestyle and quality of life. Our advanced drug delivery systems are designed to increase the effectiveness and safety of therapeutic drugs, while also reducing complications due to patient non-compliance, and mitigating the side effects of less efficient delivery systems.

Website:	http://www.nemaura.co.uk/
Number of Employees:	11-50
Location:	Loughborough
Founded in:	N/A
Sector:	Personalized medicine
Total Funding Amount:	\$5M

NeoPhore



NeoPhore, based in Cambridge, UK is focused on the discovery and development of novel small molecule therapies to treat cancer through stimulation of the immune system. Cancer neoantigens are known to stimulate the immune system and potentially be a weak spot in a tumour cell's defence mechanisms. The Company's approach targets genetic mechanisms that both clinical and lab studies suggest will promote neoantigen creation and diversity across numerous cancers. Using these insights, the Company aims to generate next-generation immuno-oncology therapeutics to improve clinical outcomes for cancer patients.

Website:	http://www.neophore.com/
Number of Employees:	N/A
Location:	Cambridge
Founded in:	N/A
Sector:	Preventive medicine
Total Funding Amount:	£3M

NeRRe Therapeutics



NeRRe Therapeutics Ltd. operates as a biotechnology company that develops clinical and pre-clinical neurokinin receptor antagonists. The company was founded in 2012 and is based in Stevenage, United Kingdom.

Website:	http://nerretherapeutics.com/
Number of Employees:	11-50
Location:	Herefordshire
Founded in:	2012
Sector:	Personalized medicine
Total Funding Amount:	\$47M

Nightstar Therapeutics



NightstaRx Ltd. is a U.K. startup company. Gene therapy is the use of a gene to treat disease. The approach could enable treatments for a several rare conditions caused by mutations in a single gene.

Website:	https://www.nightstartx.com/
Number of Employees:	11-50
Location:	London
Founded in:	2013
Sector:	Regenerative medicine
Total Funding Amount:	\$174.6M

Nuclera Nucleics



Nuclera is a next-generation DNA synthesis company creating tailored solutions for the synthetic biology, industrial enzyme engineering, and pharmaceutical industries. Our proprietary enzyme-mediated DNA synthesis platform will enable the rapid and cost-effective production of highly accurate, ultra-long DNA strands. We aim to be the key provider of long-length variant DNA and genome libraries for protein, biological pathway, and ultimately genome-scale engineering.

Website:	http://www.nuclera.com/
Number of Employees:	1-10
Location:	Cambridge
Founded in:	2013
Sector:	Personalized medicine
Total Funding Amount:	£828K

Open Bionics



They use 3D printing to make their devices customized for each customer and accessible by anyone!
They're developing the perfect medical grade materials to give their hands the right strength and grip and to make them last.

Website:	http://openbionics.com
Number of Employees:	11-50
Location:	Bristol
Founded in:	2014
Sector:	Personalized medicine
Total Funding Amount:	\$2.9M

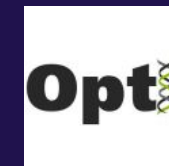
Open Inclusion

open.

Open Inclusion helps businesses understand the needs of their broader customer segments as well as their workforce. They do this primarily through asking people with lived experience of access needs. Our UK wide panel of over 350 people, with a range of impairments or just getting older, engage with us through a broad variety of methodologies. These cover quantitative, qualitative, behavioural and attitudinal research. We also conduct market research and value analysis drawing on our extensive database of nationally representative statistics covering all major age, disability and impairment categories.

Website:	https://openinclusion.com/
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Sector:	AgeTech

Optibiotix Health



OptiBiotix develop compounds which modify the human microbiome - the collective genome of the microbes in the body - to prevent and manage human disease.

The aim of OptiBiotix is to discover and develop microbial strains, compounds and formulations, which modulate the human microbiome and can be used as food ingredients and supplements or active compounds for the prevention and management of human metabolic diseases, examples of which include obesity, cholesterol and lipid distribution and diabetes.

OptiBiotix has established a pipeline of microbiome modulators that can impact on lipid and cholesterol management, energy harvest and appetite suppression. The development pipeline is fuelled by its proprietary OptiScreen® and OptiBiotic® platform technologies designed to identify metabolic pathways and compounds that impact on human physiology and bring potential health benefits. These platforms are applicable across a wider range of other human diseases.

Website:	http://www.optibiotix.com/
Number of Employees:	N/A
Location:	Heslington
Founded in:	2012
Sector:	Personalized medicine
Total Funding Amount:	£1.5M

Orca Pharmaceuticals



Orca Pharmaceuticals, a new biotechnology start-up focused on treating autoimmune diseases. Funding is from BioMotiv, a Cleveland, Ohio based therapeutics accelerator affiliated with The Harrington Project, and the New York University Innovation Venture Fund. The company, located in Oxford UK, is based on technology developed by inventors from New York University (NYU) in collaboration with the founders in the United Kingdom.

Website:	http://orcapharmaceuticals.com
Number of Employees:	N/A
Location:	Abingdon
Founded in:	2012
Sector:	Personalized medicine
Total Funding Amount:	\$2.5M

Orchard Therapeutics



Orchard Therapeutics is a biotechnology company incorporated in September 2015 and dedicated to bringing transformative gene therapies to patients with serious and life-threatening orphan diseases. Our programmes will use the potential of ex-vivo autologous haematopoietic stem cell gene therapy to restore normal gene function in severe and life-threatening inherited disorders.

We work in partnership with the world's leading research centres to harness the life-giving potential of gene therapy. Our mission is to translate results from pre-clinical and early clinical research into commercially approved gene therapies for patients around the world.

Website:	http://www.orchard-tx.com/
Number of Employees:	1-10
Location:	London
Founded in:	2015
Sector:	Regenerative medicine
Total Funding Amount:	\$160.5M

Orthogem



Orthogem Limited is a UK based biomaterials company, with an intense focus on the discovery and development of advanced Synthetic Bone Graft (SBG) material.

Website:	http://www.orthogem.com
Number of Employees:	1-10
Location:	Nottingham
Founded in:	2000
Sector:	Regenerative medicine

Oxford Biodynamics



Oxford BioDynamics Plc (AIM: OBD) ("Oxford BioDynamics") is a biotechnology company focused on the discovery and development of epigenetic biomarkers for use within the pharmaceutical and biotechnology industry. The Company's award-winning, proprietary technology platform, EpiSwitch™, aims to accelerate the drug discovery and development process, improve the success rate of therap.

Website:	https://www.oxfordbiodynamics.com/
Number of Employees:	N/A
Location:	Oxford
Founded in:	2007
Sector:	Personalized medicine

Oxford BioMedica is a pioneer of gene and cell therapy, with a leading industry position in lentiviral vector and cell therapy research, development and manufacture.

Gene therapy is the treatment of disease by delivering therapeutic DNA into a patient's cells. This can be either in vivo or ex vivo, the latter encompassing the field of cell therapy whereby genetically modified cells are put back into the body.

Their pipeline of seven gene and cell therapy therapy products addresses diseases for which there is currently no treatment or that are inadequately treated today, including ocular and central nervous system disorders. Their product candidates have the potential to transform treatment landscapes.

Their strategy is to develop their product candidates to their next value inflection points whilst continuing to build OXB Solutions into a valuable revenue-generating manufacturing and development services business.

Website:	http://www.oxfordbiomedica.co.uk/
Number of Employees:	51-100
Location:	Oxford
Founded in:	1995
Sector:	Regenerative medicine

Oxford Gene Technology



Oxford Gene Technology provides world-class genetics research solutions to leading clinical and academic research institutions.

Website:	https://www.ogt.com/
Number of Employees:	101-250
Location:	Oxfordshire
Founded in:	1995
Sector:	Personalized medicine

Oxford Genetics



Oxford Genetics Ltd is a UK based biotechnology company specialising in the production of versatile cloning plasmids for research in academic and biotechnology institutions. they also provide custom cloning and DNA synthesis. All of their products are free of intellectual property restrictions.

Website:	http://oxfordgenetics.com
Number of Employees:	1-10
Location:	Upper Heyford
Founded in:	2011
Sector:	Personalized medicine
Total Funding Amount:	£10.3M



OxStem plans to develop small molecule drugs that can activate repair mechanisms that already exist within the body. Building on decades of experience in medicinal chemistry, OxStem will design drugs that can programme resident stem and stem-like cells in situ to treat currently untreatable age-related conditions.

Website:	www.oxstem.co.uk
Number of Employees:	1-10
Location:	Oxford
Founded in:	2013
Sector:	Regenerative medicine
Total Funding Amount:	£16.9M

Patients Know Best



Patients Know Best is the world's first patient-controlled medical records system. It is a fully secure online tool which enables patients to better organise, manage and control their own health care provision – it also saves the time of physicians through allowing secure, online consultations.

Founded by Dr. Mohammad Al-Ubaydli, a physician, programmer and expert in IT in healthcare, Patients Know Best has won social enterprise awards for its focus on patient care. Patients Know Best's first customers include Great Ormond Street Hospital, St Mark's Hospital, Novartis and NHS South Devon. Patients Know Best integrates fully into the NHS secure network and is available for use by any patient with any clinician anywhere in the world. Patients Know Best complies fully with UK NHS and data protection requirements as well as the EU data protection act and US HIPAA legislation for dealing with medical data.

Website:	https://www.patientsknowbest.com
Number of Employees:	11-50
Location:	Cambridge
Founded in:	2008
Sector:	Personalized medicine
Total Funding Amount:	\$7.9M

Perfectus Biomed



They are a microbiological services provider that provide our clients with a research based approach to microbiological testing, whilst recognising the client's need for a rapid turnaround and a personalised service. We specialise in bespoke assays with a primary focus on biofilm testing.

They appreciate that not all products are appropriate for standard testing assays and therefore we work closely with our clients to develop methods that are suitable for the testing of novel products.

They offer an extremely customer focused service that includes regular feedback, consultancy, method development and report writing. In addition we produce conference abstracts and posters based on the data we produce.

Website:	http://perfectusbiomed.com
Number of Employees:	1-10
Location:	Cheshire
Founded in:	2012
Sector:	Preventive medicine
Total Funding Amount:	£300K

Phico Therapeutics



Phico Therapeutics is developing a unique antibiotic technology to address one of the most urgent challenges facing medicine today: how to destroy multi-drug resistant bacteria, the so-called "superbugs".

Phico's patented platform utilizes an antibacterial protein, SASP, to inactivate bacterial DNA and cause rapid destruction of target bacteria. SASPject is a new class of antibiotic which could provide many advantages over conventional antibiotic classes.

Website:	http://www.phicotherapeutics.co.uk
Number of Employees:	11-50
Location:	Cambridge
Founded in:	2000
Sector:	Personalized medicine
Total Funding Amount:	£9.6M

Phoqus Pharmaceuticals



Phoqus group is a specialty pharmaceutical company, engages in the development and commercialization of drugs that meet unmet medical needs using the electrostatic deposition technology. Its primary product Chronocort is a Phase II clinical trial product used for the treatment of congenital adrenal hyperplasia and Addison's disease. The company's drug delivery platform, Qtrol, which is derived from electrostatic deposition, enables solid oral dosage forms, such as tablets to be coated in a controlled and precise manner that could then be used to modify the way that a drug is released into the body.

Website:	http://www.phoqus.eu
Number of Employees:	N/A
Location:	West Malling
Founded in:	1998
Sector:	Personalized medicine

PhoreMost



PhoreMost is a new-model drug discovery company based in Cambridge, UK: Using its core expertise to open up new 'druggable' target space and working with a global network of co-invested academic and industrial collaboration partners, we aim to bring a wide array of novel 'targeted' therapies more efficiently to market and pass these cost savings onto patients.

Website:	http://www.phoremmost.com
Number of Employees:	1-10
Location:	Cambridge
Founded in:	2014
Sector:	Personalized medicine
Total Funding Amount:	\$18.8M

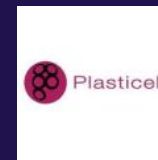
Physiomics



Physiomics plc combines systems biology with cutting edge mathematics to develop models that streamline the drug discovery and development process. Virtual Tumour, the company's lead service, is used to optimise the dosing and scheduling of oncology drugs in pre-clinical and clinical trials. This optimisation improves the efficacy of combinations and streamlines the drug development process.

Website:	http://www.physiomics-plc.com/
Number of Employees:	N/A
Location:	Oxford
Founded in:	2002
Sector:	Personalized medicine

Plasticell



Plasticell is a privately held biotechnology company using novel cell culture and drug discovery platforms to produce regenerative small molecule drugs.

Plasticell aims to develop drugs by elucidating the biochemical mechanisms that control the proliferation and differentiation of stem cells, the master cells responsible for tissue development and repair.

Website:	http://www.plasticell.co.uk
Number of Employees:	11-50
Location:	London
Founded in:	2002
Sector:	Regenerative medicine
Total Funding Amount:	£4.2M



PneumaCare is focused on development of products for diagnosis and monitoring of respiratory disease using novel 3D imaging technology, developed by the University of Cambridge. The Company's first product is a non-contact respiratory monitoring system for physician assessment, called PneumaScan, which has clinical applications in a number of medical environments. Using PneumaScan, patients can be assessed while breathing naturally or performing spirometric manoeuvres without the need to breathe into, interact with or contact the measuring device. PneumaCare's products, the PneumaScan family, enables clinicians to access many different patient-types, many of which are not within the capabilities of current clinical devices. The system is being constantly evaluated in clinical practice, currently at Addenbrooke's Hospital in Cambridge, Great Ormond Street Children's Hospital in London and in development laboratories at its design and manufacturing partner, Plextek. PneumaScan produces standard medical outputs for a broader portion of the population because it observes patients from a distance and does not impede the respiratory system as with current spirometer technology. Measuring from a distance means lower infection risk, less harm, reduced patient discomfort and minimal instrument running costs from having to replace or sterilise parts which have contacted the patient.

Website:	http://www.pneumacare.com
Number of Employees:	11-50
Location:	Cambridge
Founded in:	2008
Sector:	Preventive medicine
Total Funding Amount:	£3.4M

Precision Medicines



Precision Medicines is dedicated to improving the lives of cancer patients through developing novel targeted medicines.

Precision Medicines is a clinical stage biotechnology company focussed on in-licensing innovative drug candidates that are undergoing or have already completed initial clinical testing for the treatment of various forms of cancer and then seek to further develop these drug candidates for commercial use.

The development programs are focused on cancer sub types using a precision or personalized medicine approach, whereby therapies are co-developed with companion biomarkers to target the specific drivers of cancers.

Website:	http://www.precimed.com/
Number of Employees:	N/A
Location:	Alderley Edge
Founded in:	N/A
Sector:	Personalized medicine

Premaitha Health



Premaitha Health is a molecular diagnostics company employing next generation DNA analysis technology to develop

Website:	http://premaitha.com
Number of Employees:	11-50
Location:	Manchester
Founded in:	2013
Sector:	Personalized medicine

Proteome Sciences



Proteome Sciences is a London (UK) and Frankfurt (Germany) based SME with expertise in proteomics and biomarker research. We have discovered and patented a large number of novel protein biomarkers for diagnosis, prognosis and treatment of key human diseases including neurodegenerative disorders, cancer, stroke etc. and provide protein biomarker services to pharmaceutical and diagnostics companies.

Website:	http://www.proteomics.com/
Number of Employees:	N/A
Location:	London
Founded in:	1993
Sector:	Personalized medicine

Proximagen



Proximagen is a publicly traded neuroscience research company focused on drug development for neurodegenerative disorders, including Parkinson's disease and Alzheimer's disease.

Website:	http://www.proximagen.com
Number of Employees:	11-50
Location:	London
Founded in:	2003
Sector:	Personalized medicine
Total Funding Amount:	\$96.5M

Psioxus Therapeutics



PsiOxus Therapeutics Ltd develops novel therapeutics for serious diseases with a particular focus upon cancer. They are an Oxford based development stage biotechnology company with world leading scientists and a highly experienced management team.

Their approach is to combine macromolecular elements including viruses, polymers and other macro-molecules to produce novel patent protected therapeutics.

Website:	http://www.psioxus.com/
Number of Employees:	11-50
Location:	Oxfordshire
Founded in:	2006
Sector:	Regenerative medicine
Total Funding Amount:	£52.6M

Q Chip (Acquired by Midatech Pharma)



Q Chip is a biopharmaceutical drug delivery company developing a range of sustained-release biogeneric and biotherapies products (Q-Sphera).

Website:	http://www.q-chip.com
Number of Employees:	11-50
Location:	Cardiff
Founded in:	2003
Sector:	Personalized medicine
Total Funding Amount:	\$10.3M

QuantuMDx Group



QuantuMDx Group is a young and vibrant medical devices company developing hand-held and portable low cost diagnostic & genomic sequencing platforms capable of supporting the delivery of personalised medicine across both developed and developing nations.

Website:	http://quantumdx.com
Number of Employees:	11-50
Location:	Newcastle Upon Tyne
Founded in:	2008
Sector:	Regenerative medicine
Total Funding Amount:	\$26.3M

Quethera



Quethera is a gene therapy company dedicated to improving the future treatment of common blinding eye diseases. Our initial focus is on developing therapies to reduce progressive visual loss in glaucoma and other conditions affecting the optic nerve. Quethera is working alongside world leaders in the glaucoma field to design clinical trials capable of examining the efficacy and safety of novel therapies in patients who lose parts of their visual field at an accelerated rate (fast-progressors). The company has expertise in gene therapeutic design and development sufficient to progress its pipeline through preclinical testing and into clinical development.

Website:	http://www.quethera.co.uk/
Number of Employees:	N/A
Location:	Babraham
Founded in:	2013
Sector:	Personalized medicine



The Care Act encourages establishing the Life Story of a person, with the aim of facilitating person centred care and enabling providers to build activity and care around the particular wishes, interests and needs of each person. This usually involves pen and paper. ReMe has digitised the process, enabling family to participate and match their profile with automatically generated internet content. The result is a life vibrantly illustrated with bespoke content that grows day by day.

Website:	https://www.remindmecare.com/
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Sector:	AgeTech

ReNeuron Group



ReNeuron Group Plc engages in the research, development, and commercial exploitation of stem cell technologies for therapeutic and non-therapeutic applications.

It develops stem cell therapies for a range of neurodegenerative diseases and other conditions, including Parkinson's disease, Type 1 diabetes, and diseases of the retina. The company's therapeutic product pipeline includes ReN001, a pre-clinical development stage therapy for disabled stroke patients. Its other therapeutic and non-therapeutic programs in pre-clinical trials comprise ReN002 for diabetes, ReN003 for retinal diseases, ReN004 for Parkinson's disease, and ReN005 for Huntington's disease. ReNeuron Group also develops and markets neural stem cell lines that include ReNcell VM and ReNcell CX. The company was founded in 1997 and is headquartered in Guildford, the United Kingdom.

Website:	http://www.reneuron.com
Number of Employees:	11-50
Location:	Guildford
Founded in:	1997
Sector:	Regenerative medicine
Total Funding Amount:	\$164.3M

Rexgenero



Rexgenero is a leading regenerative medicine company and developer of advanced cell-based therapeutics for the treatment of serious diseases that are poorly treated with existing therapies. They are conducting clinical trials with their cellular therapies with the intention of obtaining marketing authorization in Europe, the United States and other markets. Their treatments draw on an exceptional understanding of the fundamental science of cell therapies. Their current cell therapies have been developed by the Andalusian Health Authority (Servicio Andaluz de Salud) and Andalusian Initiative of Advanced Therapies and they aim to work with them to develop further cell therapies to treat other indications with high unmet medical needs.

Website:	http://www.rexgenero.com/
Number of Employees:	N/A
Location:	London
Founded in:	N/A
Sector:	Regenerative medicine
Total Funding Amount:	£1.4M

Rightangled



At Rightangled Diagnostics, they believe that revealing specific information encoded within the DNA helps to close the genetic information gap between practitioners and patients, bringing them together one step closer to a satisfying, safer and more successful treatment regimen.

Through their platform, they want to move away from the traditional "one-size-fits-all" era into the personalised treatment era. They believe that targeted genetic information can help your medical practitioners find interventions and therapies tailored around your unique genes, so that they precisely match up with what your body needs. They want to remove the constraints around accessing qualified specialists - that is why they link patients to practitioners online, to provide you with access to quality healthcare from the comfort of your home.

Website:	https://www.rightangled.com
Number of Employees:	N/A
Location:	London
Founded in:	N/A
Sector:	Personalized medicine
Total Funding Amount:	£866.6K

Rogue Resolutions



Rogue Resolutions, Ltd., a Cardiff, UK-based start up that provides integrated solutions and services allowing non-invasive neurological treatment methods.

Website:	http://www.rogue-resolutions.com
Number of Employees:	1-10
Location:	Cardiff
Founded in:	2010
Sector:	Personalized medicine

Roslin Cells



Roslin Cells is the parent company of Roslin Cell Therapies. Based in Edinburgh, UK Roslin Cell Therapies has a wealth of expertise, capabilities and industry recognition in process translation to GMP, development, optimization, scale up and the GMP manufacture of Cell Therapy and Advanced Therapy Medicinal Products (ATMPs).

Website:	http://roslincells.com/
Number of Employees:	11-50
Location:	Edinburgh
Founded in:	2006
Sector:	Personalized medicine

SAGE Therapeutics



SAGE Therapeutics is dedicated to the health and wellbeing of patients with central nervous system (CNS) disorders. Our mission is to discover, develop and deliver novel medicines for many of today's most debilitating and disabling CNS disorders by leveraging compelling science, a robust clinical foundation, strong partnerships, and a world-class team of founders, advisors, investors, scientists and managers.

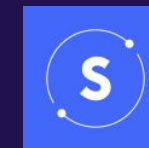
Website:	http://www.sagerx.com
Number of Employees:	11-50
Location:	Cambridge
Founded in:	2011
Sector:	Regenerative medicine
Total Funding Amount:	\$438M



Scancell is developing therapeutic vaccines for the treatment of cancer and infectious diseases based on its ImmunoBody® and Moditope™ technology platforms. Scancell's first cancer vaccine SCIB1 is being developed for the treatment of melanoma and is in Phase 1/2 clinical trials. Preliminary evidence from Part 1 of the study showing that SCIB1 produced an immune response which might be associated with clinical benefit in patients with malignant melanoma was released in December 2012.

Website:	http://www.scancell.co.uk
Number of Employees:	11-50
Location:	Nottingham
Founded in:	1996
Sector:	Personalized medicine
Total Funding Amount:	£2.6M

Sensio Air



White Lab is a healthcare analytics company based in London the US and Lebanon. With a focus on respiratory conditions, the company works to develop cutting-edge technology that identifies airborne particles and helps people predict, prevent and manage the unwanted symptoms that come with asthma and allergies.

Co-founded by professor at UCL and industrial designer Cyrille Najjar and PhD in neuroscience Dr. Eve Tamraz; White Lab unveiled Sensio AIR in 2016. A device and mobile application that allows users to monitor their health at the touch of a screen,

Sensio AIR was designed to improve the quality of life for asthma and allergy sufferers everywhere. Using real-time data and locations from across the world, the app uses AI and Machine Learning to define the correlation between user symptoms and environmental factors or allergens in their vicinity.

Website:	http://www.wlab.io
Number of Employees:	11-50
Location:	London
Founded in:	2016
Sector:	Preventive medicine

Sernova



Sernova Corp., a health sciences company, focuses on the development and commercialization of medical technologies in the United States and Canada. Its proprietary platform technologies include Cell Pouch System, a device providing a natural organ-like environment for therapeutic cells, such as insulin producing islets for diabetics; and Sertolin, a cell-based technology providing an immune-privileged environment for donor cells, reducing or eliminating the need for anti-rejection drugs. The company also focuses to commercialize products for the treatment of Parkinson's, spinal cord injury, and haemophilia diseases. Sernova Corp. is headquartered in London, Canada.

Website:	http://sernova.com
Number of Employees:	1-10
Location:	London
Founded in:	N/A
Sector:	Personalized medicine
Total Funding Amount:	\$4.3M



Sistemic Ltd. provides drug discovery and repositioning services based on its SistemRNA compound-centric drug discovery technology. It offers services to the biotechnology and pharmaceutical sectors relating to the biology of small RNAs, including microRNAs in cancer and other diseases. The company was founded in 2009 and is based in Glasgow, the United Kingdom with an additional office in Boston, Massachusetts.

Website:	http://www.sistemic.co.uk/index.html
Number of Employees:	11-50
Location:	Glasgow
Founded in:	2009
Sector:	Personalized medicine
Total Funding Amount:	\$1M

SkyePharma (Acquired by Vectura)



SkyePharma has been established in 1996 and is a leading speciality drug delivery company with a proven range of oral and inhalation technologies.

SkyePharma strives to deliver a clinical benefit for patients by using its multiple delivery technologies to create enhanced versions of existing pharmaceutical products as well as products incorporating new chemical entities. Combining established pre-clinical, clinical and regulatory expertise with the capability to formulate and manufacture drugs, both for clinical studies and commercial sale, SkyePharma identifies and develops potential new therapeutic products for out-licensing as well as working with partners to develop their concepts through to marketable products.

Website:	http://www.skyepharma.com
Number of Employees:	101-250
Location:	London
Founded in:	1996
Sector:	Personalized medicine

Solentim



Commercial cell line development for biopharmaceutical production is a high value process that is intrinsically expensive and takes a significant amount of time.

Solentim is dedicated to the development of smart tools that shorten the steps in the upstream cell line development workflow and accelerate timelines.

Their products are the Cell Metric™ series for clone screening, growth and stability measurements.

Website:	http://www.solentim.com/
Number of Employees:	11-50
Location:	Wimborne
Founded in:	2010
Sector:	Regenerative medicine

Sphere Fluidics



Sphere Fluidics develops novel single cell analysis systems for scientists searching for rare and valuable biological variants across research, therapeutic, bioproduction and diagnostic applications. Their flexible technology, innovative products and range of services help you to boost throughput and sensitivity, while reducing costs and saving time.

Website:	http://www.spherefluidics.com
Number of Employees:	11-50
Location:	Cambridge
Founded in:	2010
Sector:	Personalized medicine
Total Funding Amount:	\$15M

StoriiCare



StoriiCare is setting the gold standard for person-centred care. Our cloud based software is used by senior living communities, nursing homes and home care agencies, enabling families to connect with their loved ones and care staff to digitally record their care.

Our HQ is in Glasgow, Scotland, with a remote office in San Francisco, California.

To learn more about StoriiCare, visit www.storiicare.com To look at our job listings, visit <https://angel.co/storiicare>

Website:	https://storiicare.com/
Number of Employees:	11-50
Location:	Glasgow City
Founded in:	2014
Sector:	AgeTech
Total Funding Amount:	£580K

Suisse Life Science Group plc



Suisse Life Science is a biological big data analytics company that has developed a knowledge-discovery platform to extract cause-effect relationships directly from genetic interpretation – and at scale – linking them to lifestyle data from consumer devices in real time to provide actionable recommendations.

The goal is to leverage these capabilities to transform health from an expert-driven field – with poor predictive power and large gaps in its fundamental understanding of human biology – and transforming it into a data-driven predictive science that makes it as easy as possible for individuals of all ages to take a more active role in managing their health.

Website:	https://suisselifescience.com
Number of Employees:	11-50
Location:	London
Founded in:	2016
Sector:	Personalized medicine

Swift Molecular Diagnostics



Swift Molecular Diagnostics is a molecular diagnostic company that wants to revolutionise the field of diagnostics and make it accessible to everybody and everywhere. They are developing a novel technology for cost-effective, rapid, easy-to-use and highly specific genetic “yes or no” test that can be performed directly by the side of the patient in under 15 minutes. For the first time in history of molecular diagnostic, anyone will be able to use a DNA test regardless of his location, equipment and training.

Website:	https://www.swiftdx.co.uk/
Number of Employees:	N/A
Location:	Cambridge
Founded in:	N/A
Sector:	Personalized medicine

Synpromics Ltd



Synpromics develops and commercializes synthetic promoters to control gene expressions and regulations. The company was founded in 2010 and is based in Edinburgh, United Kingdom.

Website:	http://www.synpromics.com/
Number of Employees:	1-10
Location:	Edinburgh
Founded in:	2010
Sector:	Personalized medicine
Total Funding Amount:	£9.2M

T7 Technology



At T7 Technology we understand that nothing replaces face to face support, but sometimes all you need is reassurance, without the need for a visit or care in your home. Perhaps its someone on the end of the phone just in case, or to let your your family and friends know everything is okay. There are also those times when you may need something more, and not just in an emergency but ideally before it happens.

We created T7 Tech to offer that reassurance and response. We have developed discreet digital monitoring technologies that not only allow us to understand your emergency needs (in the same way that traditional telecare services do) but also to pre-empt some of your care needs and help you make decisions to keep you safe and well.

Website:	http://www.t7.technology
Number of Employees:	11-50
Location:	London
Founded in:	2016
Sector:	Personalized medicine

TC BioPharm



TC BioPharm's mission is to develop and commercialise innovative cell-based products to treat disease, improving patient health and Quality of Life.

TC BioPharm is a clinical development company with a cell-based product pipeline capable of treating a variety of disorders including cancer and severe viral infections. TCB is currently conducting Phase II/III clinical studies of its lead product, ImmuniCell®, in renal cell carcinoma, non-small cell lung cancer and melanoma patients.

Website:	http://www.tcbiopharm.com/
Number of Employees:	11-50
Location:	Holytown
Founded in:	2013
Sector:	Personalized medicine
Total Funding Amount:	\$34M

Theolytics



Theolytics is a pre-clinical stage biotechnology company developing next-generation oncolytic viral therapies. The company was formed in 2017 to drive the development of a pipeline of novel clinical trial candidates, and is led by a team that combines over 40 years of experience in oncolytic virus development. The company uses an adenovirus platform to develop targeted, self-amplifying therapeutic agents, and aims to deliver innovative cancer care to millions of people in need worldwide.

Website:	https://www.theolytics.com/
Number of Employees:	N/A
Location:	Oxford
Founded in:	N/A
Sector:	Preventive medicine

Tissue Regenix



Tissue Regenix was founded in May 2006, to commercialise innovative technologies in regenerative medicine. The underpinning science was developed over the last decade in the world-leading Institute for Medical and Biological Engineering at the University of Leeds by Professors John Fisher and Eileen Ingham. The research has received in excess of Â£4 million grant funding to date from UK research councils (EPSRC, BBSRC) and the Children's Heart Surgery Fund.

Website:	https://www.tissueregenix.com/
Number of Employees:	51-100
Location:	York
Founded in:	2006
Sector:	Regenerative medicine
Total Funding Amount:	£685K

Touch Bionics



Touch Bionics Inc., is a Livingston, Scotland, UK-based developer of advanced upper-limb prosthetics.

Website:	http://www.touchbionics.com/
Number of Employees:	N/A
Location:	Livingston
Founded in:	2005
Sector:	Personalized medicine
Total Funding Amount:	£5.8M

Tunstall Healthcare Group



Tunstall is a leading provider of telecare/telehealth solutions. Operating in more than 30 countries and employing over 1,200 people, Tunstall supports 2.5 million people around the world. Tunstall's philosophy is simple - to protect, support and care for people - by providing healthcare technology and services that enable anyone requiring support and reassurance, such as older people or those with long term needs, to lead an independent life with dignity and reassurance.

Tunstall provides complete and fully-integrated telecare and telehealth solutions for home, assisted living and specialist care environments, hospital communication systems, associated support services, response centre software systems and monitoring services.

Website:	http://www.tunstall.co.uk
Number of Employees:	1001-5000
Location:	North Yorkshire
Founded in:	1957
Sector:	AgeTech



ukactive exists to improve the health of the nation by getting more people, more active, more often. ukactive provides services and facilitates partnerships for a broad range of organisations, all of which support their vision and have a role to play in achieving that goal.

Thier long-standing and uncompromising vision is to get more people, more active, more often. We are committed to improving the health of the nation through promoting active lifestyles. They achieve this by facilitating big impact partnerships, campaigning and providing world class membership services. We exist to serve any organisation with a role in getting more people, more active, more often. They provide a supportive, professional and innovative platform for our partners to succeed in achieving their goals and create the conditions in which our sector can grow. ukactive – together achieving more

Website:	https://www.ukactive.com/
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Sector:	Personalized medicine



Valirx Plc, an investment holding company, engages in the research and development of oncology therapeutics and diagnostics in the United Kingdom. The company principally offers VAL 101 that acts to shut down the Bcl-2 gene, a proto-oncogene. It develops human papilloma virus diagnostic products based on the Nucleosomics, a platform for non-invasive tests for early cancer diagnosis based on epigenetic signal changes associated with malignancy; and HyperGenomics, a platform for differential diagnostic and prognostic tests in cancer, as well as testing for personalized medicine. The company also develops GeneICE compounds, which treat various diseases by acting to shut down harmful genes and prevent their expression. Valirx Plc is based in London, the United Kingdom.

Website:	http://www.valirx.com
Number of Employees:	N/A
Location:	London
Founded in:	2000
Sector:	Personalized medicine
Total Funding Amount:	£800K

Verona Pharma



Verona Pharma is a biotechnology company dedicated to discovering new drugs for the treatment of chronic respiratory diseases, such as asthma, allergic rhinitis (hay fever), chronic obstructive pulmonary disease (COPD) and cough.

Website:	http://www.veronapharma.com
Number of Employees:	N/A
Location:	London
Founded in:	2005
Sector:	Personalized medicine
Total Funding Amount:	\$77.1M

Vertex Pharmaceuticals



Vertex Pharmaceuticals Incorporated is a global biotechnology company committed to the discovery and development of breakthrough small molecule drugs for serious diseases. The Company's strategy is to commercialize its products both independently and in collaboration with major pharmaceutical companies. Vertex's product pipeline is focused on viral diseases, cystic fibrosis, inflammation, autoimmune diseases, cancer, and pain

Website:	http://www.vrtx.com
Number of Employees:	1001-5000
Location:	Abingdon
Founded in:	1989
Sector:	Regenerative medicine
Total Funding Amount:	\$600.4M



Vida's mission is to empower. With technology we empower the elderly, they empower their families, and they empower their carers. Their platform enables a circle of care connecting healthcare providers to the elderly. Everything we do is centred around the cared for, their family and their carers.

They have a wide network of qualified, experienced and trusted carers. They only accept the top 10% of applicants who must have a minimum of two years' experience. Vida carers must pass our strict in-house recruitment and training processes. Behind them sit a team of leading and award winning care managers and care co-ordinators.

Website:	https://vida.co.uk
Number of Employees:	11-50
Location:	London
Founded in:	2016
Sector:	Personalized medicine
Total Funding Amount:	€1M

Videregen Limited operates as a regenerative medicine company.

Videregen's goal is to offer the world's first commercially available organ replacement products to address the chronic shortage of organs for transplantation. Formed in 2011 as a spin-out from Northwick Park Institute of Medical Research in London, it uses its proprietary technology to produce biological scaffolds to which a patient's own stem cells are added, creating a bespoke organ replacement.

Initially focused on diseases of the trachea and bowel, Videregen aims to develop the world's first commercially available organ replacements for these conditions, reducing healthcare costs and improving the quality of life for patients.

Website:	http://www.videregen.com/
Number of Employees:	11-50
Location:	Liverpool
Founded in:	2011
Sector:	Regenerative medicine
Total Funding Amount:	£3.1M

VirionHealth



VirionHealth is a biotechnology company developing ground-breaking therapies for respiratory viral infections. Its pioneering DI platform technology aims provide a new class of biological antiviral active across a range of infectious diseases.

Website:	http://www.virionhealth.com
Number of Employees:	N/A
Location:	Coventry
Founded in:	2017
Sector:	Personalized medicine
Total Funding Amount:	£13M

Virttu Biologics



Virttu is a privately held biotechnology company, which has pioneered the development of oncolytic viruses for treating cancer. Virttu Biologics Limited is a wholly-owned subsidiary of TNK Therapeutics, Inc. and part of the group of companies owned by Sorrento Therapeutics, Inc. Virttu has pioneered the development of oncolytic viruses for treating cancer. Although viruses naturally kill the cells they infect, weakened viruses have been used in medicine for centuries as vaccinations against the infectious diseases they cause. Scientists at Virttu have reprogrammed this ability in a common human virus so that it targets and kills only cancer cells (oncolysis), leaving normal cells unharmed. Additionally, the presence of the tumour-specific viral infection works as a vaccination triggering the patient's own immune system to mount an anti-cancer response – a treatment known as oncolytic immunotherapy. Virttu's lead oncolytic product SEPREHVIR® has been administered to 102 patients (as at 1st March 2017) with ages ranging from 8 to 84 years and with many different types of cancer including brain, melanoma, head and neck cancer, sarcomas, neuroblastoma and mesothelioma. In these patients, SEPREHVIR can be administered by the route most suitable for their disease which includes systemic administration by intravenous infusion, direct intratumoural injection, and loco-regional infusion. Virttu's scientific and technical expertise in oncolytic virotherapy has been established over 15 years of research and development activity carried out both in-house and with leading researchers in oncolytic immunotherapy, resulting in many firsts in the field and 68 publications in peer-reviewed journals.

Website:	http://www.virttu.com/
Number of Employees:	N/A
Location:	Leeds
Founded in:	1999
Sector:	Personalized medicine

Walk With Path



Path is developing innovative walking aids for people with mobility issues caused by injury, ageing, and serious diseases such as diabetes, Multiple Sclerosis and Parkinson's Disease. The aim is to reduce the risk of falls, to keep users mobile for longer and increase independence. This has been proven to increase the quality of life for users and reduce direct and indirect costs for health providers. Path products offer the opportunity to increase quality of life and reduce healthcare costs.

Website:	https://www.walkwithpath.com/
Number of Employees:	1-10
Location:	London
Founded in:	2014
Sector:	AgeTech

Xenetic Biosciences



Xenetic Biosciences PLC (formerly Lipoxen PLC) Xenetic is a leading UK-based clinical-stage biopharmaceutical company focused on discovery, research and development of next-generation biologic drugs and novel orphan oncology therapeutics. Their product pipeline includes:

PolyXen™: PolyXen is a patent-protected enabling platform technology designed for protein or peptide therapeutics. It uses the natural polymer polysialic acid (PSA) to prolong a drug's circulating half-life and potentially improve other pharmacological properties. PolyXen has been demonstrated in human clinical trials to confer extended half-life to biotherapeutics such as recombinant human erythropoietin and recombinant Factor VIII (rFVIII). **XBIO-101 (sodium cridanimod):** XBIO-101 is a small-molecule immunomodulator and interferon inducer which, in preliminary studies, has been shown to increase progesterone receptor (PrR) expression in endometrial tissue.

Website:	http://www.xeneticbio.com
Number of Employees:	11-50
Location:	London
Founded in:	2014
Sector:	Preventive medicine
Total Funding Amount:	\$10M

Zio Health is a healthcare platform allowing its users to know molecular health status. The company develops multi-functional electronic devices for measuring, testing and detecting the molecular composition of chemical and biological substances for the presence, absence, or quantity of target molecules.

Their services include analysis of:

- Home Diagnostics (Blood, Urine, Saliva, Breast-milk)
- Point-of-Care Devices for Healthcare institutions
- Remote Medical Testing
- Water Quality Testing
- Food Quality Testing
- Formula Milk Quality Testing

Website:	http://www.zio-health.com
Number of Employees:	11-50
Location:	London
Founded in:	N/A
Sector:	Personalized medicine

180 Investors Longevity in UK

List of Investors / Longevity in UK

1. 24 Haymarket	31. Catapult Ventures	61. Franklin Templeton Investments
2. 4BIO Capital	32. Cedar Mundi Ventures	62. Gilde Healthcare
3. Abingworth	33. Celgene	63. GlaxoSmithKline
4. Advent Life Sciences	34. Cera	64. Global Health Investment Fund (GHIF)
5. Advent Venture Partners	35. Charterhouse Capital Partners	65. Goldman Sachs
6. Agent Capital	36. China Medical System Holdings Limited	66. Grima Ventures
7. Aisling Capital	37. Clarendon Fund Managers	67. Guinness Asset Management
8. Albion Capital Group	38. Clarus Ventures	68. Hambro Perks Ltd.
9. Amadeus Capital Partners	39. Clough Capital Partners	69. HAX
10. Angel CoFund	40. Clydesdale Bank	70. Henderson Global Investors
11. Angel Investment Network	41. Cowen Group	71. Horizon Discovery
12. Angels in MedCity	42. Creandum	72. Hoxton Ventures
13. Aquarius Equity Partners	43. Credo Ventures	73. Human Longevity
14. ARCH Venture Partners	44. Crowdcube	74. Hygea VCT
15. Archangels	45. Deerfield	75. Imperial Innovations
16. Arix Bioscience	46. Downing LLP	76. Index Ventures
17. Baillie Gifford	47. Downing Ventures	77. Innovate U.K.
18. Balderton Capital	48. Draper Esprit	78. Innovations New Ventures
19. Bank of America Merrill Lynch	49. Draper Fisher Jurvetson (DFJ)	79. Invesco
20. Baxter International	50. EcoR1 Capital	80. Invesco Perpetual
21. Beringea	51. Edmond de Rothschild Investment Partners	81. Invest Northern Ireland
22. Bethnal Green Ventures	52. Enterprise Ventures	82. J.P. Morgan Securities Inc.
23. Bill & Melinda Gates Foundation	53. Equity Gap	83. JamJar Investments
24. BioMotiv	54. European Commission, European Innovation	84. Janssen Pharmaceuticals
25. BioScience Managers Limited	55. Eurostars	85. Juno Capital
26. Calculus Capital	56. F-Prime Capital Partners	86. Kairos
27. California Institute for Regenerative Medicine	57. Finance Wales	87. Kima Ventures
28. Cambridge Angels Group	58. Forbion Capital Partners	88. Kinnevik AB
29. Cambridge Capital Group	59. Foresite Capital	89. KIZOO
30. Cambridge Innovation Capital plc	60. Fountain Healthcare Partners	90. Korea Investment Partners

List of Investors / Longevity in UK

91.	KTB Network	121.	OrbiMed	151.	Teva Pharmaceutical Industries
92.	L Marks	122.	Oxford Capital Partners	152.	The Capital Fund
93.	Lansdowne Partners	123.	Oxford Technology Management	153.	The Discovery Fund, Cambridge University
94.	Lanstead Capital	124.	Parkwalk Advisors Ltd	154.	The North West Fund
95.	Lundbeck	125.	Pavilion Capital	155.	Third Rock Ventures
96.	Lundbeckfonden Ventures	126.	Pitch@Palace	156.	Touchstone Innovations
97.	Masa Life Science Fund	127.	Quester Capital	157.	Twist Bioscience
98.	MassChallenge	128.	QVentures	158.	UCL Technology Fund
99.	Mentor Capital	129.	QVT Financial	159.	UCLB
100.	Mercia Technologies	130.	RA Capital Management	160.	UK Innovation & Science Seed Fund Rainbow Seed Fund
101.	Merlin Nexus	131.	Redmile Group	161.	UK Trade & Investment (UKTI)
102.	Ministry of Defence - UK	132.	Ridgeback Capital	162.	University of Bristol Enterprise Fund
103.	Morgan Stanley	133.	Roche Venture Fund	163.	University of Cambridge Enterprise
104.	MVM Life Science Partners	134.	Rock Springs Capital	164.	University of Edinburgh
105.	Nesta Ventures	135.	RTW Investments LLC	165.	University of Oxford
106.	New Enterprise Associates	136.	Scottish Enterprise	166.	UnLtd
107.	New Leaf Venture Partners	137.	Seedcamp	167.	Upsher Smith Laboratories
108.	New Wave Ventures	138.	Seneca Partners	168.	venBio Partners
109.	Newable Private Investing	139.	Sixth Element Capital	169.	Venrock
110.	Nextech Invest	140.	Smith & Nephew	170.	Versant Ventures
111.	NHN Investment	141.	SOSV	171.	Vertex Pharmaceuticals
112.	NHS England	142.	SPARK Impact	172.	Vivo Capital
113.	North West Fund for Biomedical	143.	SR One	173.	Wellcome Trust
114.	Novartis Venture Fund	144.	Stanley Family Foundation	174.	Wellington Capital Management
115.	Novo A/S	145.	Sustainable Development Technology Canada	175.	White Rose Technology Seedcorn Fund
116.	NVM Private Equity	146.	Syncona Partners LLP	176.	Winton Ventures
117.	NYU Innovation Venture Fund	147.	Takeda Ventures	177.	Woodford Investment Management
118.	Oceania Capital Partners	148.	Technology Venture Partners	178.	Wren Capital
119.	Octopus Ventures	149.	techstart NI	179.	Xenos
120.	Odey Asset Management	150.	Temasek Holdings	180.	yabeo capital

24 Haymarket



24 Haymarket is a leading Investment network, which included several highly-experienced private equity and venture capital investors, seasoned entrepreneurs and senior operators. Investing up to £5 million in growth companies in UK and Europe. 24 Haymarket has invested in more than 50 high-growth businesses.

Website:	www.24haymarket.com
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2011
Portfolio Companies:	Sphere Fluidics



4BIO Capital



4BIO Capital Partners is an emerging asset manager focusing on private equity and venture capital in high growth and high return segments of biotech - biologics, gene and cell therapy and bioinformatics. Advanced biotherapeutics are key to addressing the challenges of modern-day healthcare – spiraling cost of long-term chronic illness and lack of cures.

Website:	www.4biocapital.com
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2014
Portfolio Companies:	Orchard Therapeutics



Abingworth



Abingworth is an international investment group dedicated to collaborating with life sciences entrepreneurs to develop their ideas into products that have a dramatic impact on health. With over \$1 billion under management, Abingworth invests at all stages of development, from start-ups to publicly traded companies, and across all life sciences sectors. Supporting its portfolio companies with a team of 27 at offices in London, Menlo Park, and Boston, Abingworth has invested in 142 life science companies, completed 60 IPOs and 40 mergers and acquisitions.

Website:	www.abingworth.com
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	1973
Portfolio Companies:	CRISPR Therapeutics



Advent Life Sciences



Advent Life Sciences is one of Europe's leading venture teams investing in life sciences businesses. The team consists of 11 professionals with extensive scientific, medical and operational experience, and a long-standing track record of entrepreneurial and investment success across the UK, Europe and the US. The Firm invests in a range of sectors within life sciences, principally in new drug discovery, enabling technologies, and med tech. Realisations in the last three years include Algeta, Avila, CN Creative, EUSA, Micromet. Current investments include Acutus, Biocartis, Cellnovo, f2G, NeRRe,

Website:	www.adventls.com
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	2010
Portfolio Companies:	Levicept

Levicept

Advent Venture Partners

Advent
Venture Partners

Advent Venture Partners is one of Europe's most successful growth and venture capital investors in market-leading tech and life sciences businesses.

Website:	http://adventventures.com
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	1981
Portfolio Companies:	NeRRe Therapeutics



Agent Capital



Agent Capital is a biotech venture capital firm focused on investing in novel therapeutics that address unmet patient need. Balanced two-pronged approach, between clinical stage companies with high commercial potential and early-stage transformative technologies prime for future M&A. From preclinical to commercial stage, Agent Capital makes direct equity investments across all stages of development. Agent Capital's team partners with scientists, entrepreneurs and other investors to develop the next generation of healthcare innovations, focusing on making a difference in patients' lives.

Website:	www.agentcapital.com
Number of Employees:	n/a
Location:	Cambridge, United States
Founded in:	n/a
Portfolio Companies:	Orchard Therapeutics



Aisling Capital



Aisling Capital believes the next decade will be marked by a revolution in healthcare driven by new therapeutics generated by biotechnology. The completion of the human genome has given scientists new insights into the causes of human disease. These insights, combined with the past 20 years of developments in the biotechnology industry, are leading to rapid expansion of novel approaches toward the diagnosis, prevention, and treatment of life-threatening illnesses. These advances have led to an ever-increasing demand for capital to complete the development and commercialization of new therapeutics. Aisling Capital 's goal is to support the leading global healthcare companies that are building on these technical and medical breakthroughs to commercialize new healthcare products.

Website:	www.aislingcapital.com
Number of Employees:	11-50
Location:	New York, United States
Founded in:	2000
Portfolio Companies:	Verona Pharma



Verona Pharma

Albion Capital Group

Albion typically invests £2-5m for a minority stake Series A and early Series B. Albion Capital Group supports outstanding entrepreneurs who have demonstrated product-market fit, a clear go to market strategy and long term differentiation in a growth market.

Albion Capital Group looks at most sectors, with a particular focus on digital B2B companies – enterprise software and technology services – across a broad range of sectors, including digital health, cybersecurity, martech and fintech. Companies that benefit from macro themes around disruption, digital transformation, and the trend towards a data-driven economy are particularly attractive.

Albion Capital Group also invests in companies commercialising IP from University College London via the UCL Technology Fund.

Website:	www.albion.capital
Number of Employees:	n/a
Location:	London, United Kingdom
Founded in:	2009
Portfolio Companies:	Aridhia Informatics



Amadeus Capital Partners



Amadeus Capital is a global technology investor that invests in technology companies at all stages, from seed to venture buyout; Amadeus Capital Partners also buys stakes from other investors or founders, to ensure that companies and entrepreneurs have the runway they need to succeed. Amadeus Capital Partners invests in a broad variety of sectors including enterprise and infrastructure software, consumer and business services, medical technology and healthcare IT, and cleantech and resource efficiency.

It has the imagination to see where new businesses can be created and the technical insight, operational experience and global network to help entrepreneurs make their vision a reality.

The Company was founded in 1997 and since has backed more than 130 companies and raised over \$1bn for investment.

Website:	www.amadeuscapital.com
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	1997
Portfolio Companies:	Healx



Angel CoFund



Angel CoFund invests in small and medium-sized enterprises with high growth potential across the UK. The Angel CoFund was launched in November 2011. The fund has been created with a grant from the Regional Growth Fund and support from the Business Bank. It invests alongside business angel syndicates from across the UK. It is a private sector entity with clear objectives to boost the quality and quantity of business angel investing in the UK, and to support long-term, high quality jobs in growing companies. The fund is able to make initial equity investments of between 100K and 1M in to SMEs alongside syndicates of business angels, with an upper limit of 49% of any investment round. It will only make investments alongside Syndicates of business angels, who must be investing in a given business for the first time. Any final decision to invest will be made by the independent Investment Committee of the fund based on the detailed proposals put forward by business angel syndicates. The fund will only make commercial investments. Since its launch the fund has invested in excess of 22M, alongside a further 87M from business angels and other investors, in order to help UK companies grow. In 2013 the fund was increased in size in order to meet demand for investment from both high potential businesses and co-investors.

Website:	www.angelcofund.co.uk
Number of Employees:	1-10
Location:	Sheffield, United Kingdom
Founded in:	2011
Portfolio Companies:	BrainWaveBank



Angel Investment Network



Angel Investment Network is a London-based investment company founded in 2004 whose aim is to connect entrepreneurs and investors. Today they have 35+ angel networks worldwide covering over 80 countries. They have over 150,000 investor members and over 600,000 entrepreneurs have signed up to use their services. Funding from angel investors is a great solution for entrepreneurs looking to grow their business. Investors will bring a wealth of expertise and an extensive network of contacts to the table, as well as capital.

Website:	www.angelinvestmentnetwork.co.uk/network
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2004
Portfolio Companies:	Vida



Angels in MedCity



Angels in MedCity is a partnership between MedCity, London Business Angels and Angels4LifeSciences. The programme aims to introduce new people to investing and investing in the healthcare/life sciences sector via investor workshops and introduce business angels to investment opportunities from highly-selected and trained companies. With a particular focus on drug therapies, digital health and medical device technologies, Angels in MedCity brings potential investors together with life sciences experts in a programme aimed at both people who are new to investing and experienced investors who have little or no experience in the life sciences sector.

The aim is to build investor understanding in the life sciences sector and support life sciences companies to gain funding to commercialise their ideas. The Angels in MedCity initiative is delivered by Newable and MedCity with further expertise from Angels Life Sciences. Angels in MedCity's initiative provides practical support to investors and small businesses that supports investment funding and thereby helps to create jobs in London.

Website:	www.angelsinmedcity.org.uk
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2014
Portfolio Companies:	Eagle Genomics



Aquarius Equity Partners



Aquarius Equity Partners is a specialist fund manager of high net worth individuals and family offices. Their funds focus exclusively on private equity and venture capital, investing in the UK unlisted company market. Aquarius Equity identifies and invests in emerging, life science technology, including biotechnology, therapeutics, speciality pharma and medical devices.

Aquarius Equity drives value through building experienced management teams who can develop significant commercial partnerships, and by investing based upon key value inflection milestones.

Website:	http://www.aquariusequity.com/
Number of Employees:	N/A
Location:	Manchester, United Kingdom
Founded in:	N/A
Portfolio Companies:	C4X Discovery



ARCH Venture Partners



ARCH invests primarily in companies co-founded with leading scientists and entrepreneurs, concentrating on bringing to market innovations in life sciences, physical sciences, and information technology. ARCH Venture Partners enjoys special recognition as a leader in the successful commercialization of technologies developed at academic research institutions and national laboratories.

ARCH currently manages seven funds totaling nearly \$1.5 billion and has invested in the earliest venture capital rounds for more than 120 companies. ARCH investors include major corporations, pension funds, endowment funds, financial institutions, and private investors.

Website:	http://www.archventure.com
Number of Employees:	11-50
Location:	Chicago, United States
Founded in:	1986
Portfolio Companies:	SAGE Therapeutics



Archangels



Originally formed in 1992 and based in Edinburgh, Archangels is a prominent business angel syndicate which has been at the forefront of early stage investing in Scotland for more than two decades. Today, Archangels comprises more than 60 investor members and typically co-ordinates the investment of more than £10 million per year in early stage Scottish companies.

The Archangels syndicate predominantly invests in companies from the technology, software and life sciences sectors – three markets in which Scotland produces a wealth of talent. The syndicate and its executive team have wide experience in diverse business sectors and disciplines to help and support the creation and development of young companies to maximise investor return.

Website:	http://www.archangelsonline.com
Number of Employees:	11-50
Location:	Edinburgh, United Kingdom
Founded in:	1992
Portfolio Companies:	Touch Bionics

Arix Bioscience



Arix Bioscience is a global healthcare and life science company that drives value in private and public companies through operational and strategic direction as well as patient capital. Led by renowned figures in the healthcare and life science sectors, Arix Bioscience is headquartered in London and has an office in New York. Arix Bioscience's extensive experience in academic science, clinical and commercial strategy, company operations, mergers and acquisitions, venture capital and corporate finance puts us in an especially strong position to build and support a wide range of businesses and technologies. Arix Bioscience has privileged agreements with leading universities in the UK, Europe and Australia, providing direct access to innovative new technologies. Arix Bioscience also has access to a broad range of research projects from US academic institutions.

Website:	http://arixbioscience.com
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	2015
Portfolio Companies:	Autolus Limited

Baillie Gifford is one of the UK's leading independently owned investment management firms. It is owned and run by 39 of its senior executives who operate as a partnership. It enables to manage the business for the future as well as the present, with the emphasis on genuine long-term thinking rather than lurching haplessly between short term targets. Baillie Gifford is unique in the UK in being a large-scale investment business that has remained an independent private partnership. This ownership structure has allowed us to keep our efforts focused entirely on our clients and their investments.

Website:	http://www.bailliegifford.com
Number of Employees:	501-1000
Location:	Edinburgh, United Kingdom
Founded in:	2002
Portfolio Companies:	Orchard Therapeutics

Balderton Capital



Balderton Capital is a Series A-focused European venture capital firm. Founded in 2000, Balderton backs breakthrough technology businesses. The company is headquartered in London, England. Balderton Capital includes the founders and operational leaders of multi-billion dollar global companies. Balderton Capital is committed to putting expertise, support, and network, to work for founders. Balderton Capital is sharing expertise and insights to help go through the journey from an idea to the large, global and impactful business you aim to build.

Website:	http://www.balderton.com
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	2000
Portfolio Companies:	Patients Know Best



Bank of America Merrill Lynch



Bank of America Merrill Lynch is the corporate and investment banking division of Bank of America. It provides services in mergers and acquisitions, equity and debt capital markets, lending, trading, risk management, research, and liquidity and payments management. It was formed through the combination of the corporate and investment banking activities of Bank of America and Merrill Lynch following the acquisition of the latter by the former in January 2009.

Bank of America completed the acquisition of Merrill Lynch & Co on 1 January 2009. Bank of America began rebranding all of its corporate and investment banking activities under the Bank of America Merrill Lynch name in September 2009. In April 2010, Bank of America Merrill Lynch appointed Christian Meissner as head of investment banking for Europe, Middle East and Africa. In April 2011, Bank of America Merrill Lynch integrated its corporate and investment banking operations into a single division. In October 2013, Bank of America Merrill Lynch was recognised as the Most Innovative Investment Bank of the Year in The Banker's Investment Banking Awards.

Website:	http://corp.bankofamerica.com
Number of Employees:	10001+
Location:	Dublin, Ireland
Founded in:	1992
Portfolio Companies:	Vertex Pharmaceuticals



Baxter International



Baxter International Inc. develops, manufactures, and markets products for people with hemophilia, immune disorders, infectious diseases, kidney disease, trauma, and other chronic and acute medical conditions.

Baxter International Inc. has collaborations with HHD LLC, DEKA Products Limited Partnership, and DEKA Research and Development Corp. for the development of a home hemodialysis machine. It markets its products to hospitals, kidney dialysis centers, nursing homes, rehabilitation centers, doctors offices, clinical and medical research laboratories, and patients at home under physician supervision.

The company was founded in 1931 and is headquartered in Deerfield, Illinois.

Website:	http://www.baxter.com
Number of Employees:	10001+
Location:	Deerfield, United States
Founded in:	1931
Portfolio Companies:	Xenetic Biosciences



Beringea is an international venture capital and private equity firm dedicated to finding, funding and nurturing exceptional companies in growth industries. Founded in 1988, the firm currently has more than 60 portfolio companies in a range of emerging sectors, including media, health care and life sciences, Internet technologies, advanced manufacturing, clean tech and specialized consumer goods. With capital, experience and offices in the U.S. and U.K., Beringea is in a unique position to offer entrepreneurs and their management teams the resources to develop strategy, evaluate growth opportunities, solve problems and build value. Beringea is the co-manager of the Michigan Growth Capital Partners Funds in the U.S., as well as the ProVen VCT family of funds in the UK, among others.

Website:	http://www.beringea.com
Number of Employees:	11-50
Location:	Farmington Hills, United States
Founded in:	1988
Portfolio Companies:	Altacor



Bethnal Green Ventures



Bethnal Green Ventures is an early-stage investor in tech for good ventures. Twice a year, we run an accelerator programme for startups using technology to tackle big social and environmental problems.

We work with early-stage teams and invest £20,000 in each startup in exchange for 6% equity during an intensive programme of support, advice and mentoring to help build, test and launch your idea.

Website:	https://bethnalgreenventures.com/
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2011
Portfolio Companies:	Aparito



Bill & Melinda Gates Foundation

BILL & MELINDA
GATES foundation

The Bill & Melinda Gates Foundation is a grant-making foundation that supports initiatives in education, world health and population, and community giving in the Pacific Northwest. In its local region, the foundation promotes strategies and programs that help low income families. The Bill & Melinda Gates Foundation was co-founded by Bill Gates and Melinda Gates in 2000 and is based in Seattle, Washington, with regional offices in Washington, D.C.; New Delhi, India; Beijing, China; and London, United Kingdom. Its trustees are Bill and Melinda Gates, and Warren Buffett.

Website:	http://www.gatesfoundation.org
Number of Employees:	11-50
Location:	Seattle, United States
Founded in:	1997
Portfolio Companies:	Mologic



BioMotiv is the mission-aligned development company of The Harrington Project for Discovery and Development. The Harrington Project, unveiled in February by University Hospitals (UH), is a first-of-its-kind \$250 million initiative that promises to revolutionize how new breakthrough drugs are advanced to market. By aligning the upstream efforts of the recently created UH Case Medical Center's Harrington Discovery Institute with the downstream development efforts of BioMotiv, The Harrington Project seeks to accelerate the therapeutic innovation process for the benefit of patients globally.

Website:	http://www.biomotiv.com
Number of Employees:	11-50
Location:	Cleveland, United States
Founded in:	2012
Portfolio Companies:	Orca Pharmaceuticals

BioScience Managers Limited

BioScience
Managers

BioScience Managers Pty Ltd (formerly IB Managers) is a leading life sciences investment firm, headquartered in Melbourne, Australia. Established in 2003, BioScience Managers offers a global, multi-disciplinary team, bringing an international perspective together with the track record, networks and expertise required to convert that perspective into informed, high return investment decisions.

BioScience Managers Limited operates a high value-add model, providing assistance and supports to portfolio companies via global team and international network of independent industry advisors. With combined experience of over 170 investments, more than 40 IPO's/ reversals in Europe, the USA and Australia, and a diverse skillset specific to the bio-based industries, BioScience Managers Limited aims to provide investee companies with significant value-add over and above capital invested.

Website:	www.biosciencemanagers.com
Number of Employees:	1-10
Location:	Melbourne, Australia
Founded in:	2003
Portfolio Companies:	Avita Medical

Calculus Capital



At Calculus Capital they are specialists in creating and managing tax efficient private equity funds for the individual. Funds that are ideal for today's market - offering generous tax benefits, and significant growth potential within a sensible risk profile.

Calculus Capital looks to make £2-5 million investments in established companies with proven management teams and a successful product or service. Calculus Capital's entrepreneurial flair, combined with experience and sound commercial judgement has resulted in a diversified investment portfolio and an impressive track record.

In June 2013 Calculus Capital was top ranked in the prestigious Martin Churchill Tax Efficient Review for the 6th year in a row.

The Government has recently shown its support for EIS funds, by maintaining the five generous tax benefits and widening the scope of EIS investments. These changes benefit Calculus Capital's rigorous and proven strategy. As a result we are experiencing our strongest pipeline of prospective investments yet.

Website:	www.calculuscapital.com
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	1999
Portfolio Companies:	Horizon Discovery



California Institute for Regenerative Medicine



The California Institute for Regenerative Medicine ("The Institute" or "CIRM") was established in early 2005 following the passage of Proposition 71, the California Stem Cell Research and Cures Initiative. The statewide ballot measure, which provided \$3 billion in funding for stem cell research at California universities and research institutions, was approved by California voters on November 2, 2004, and called for the establishment of a new state agency to make grants and provide loans for stem cell research, research facilities and other vital research opportunities.

The mission of CIRM is to support and advance stem cell research and regenerative medicine under the highest ethical and medical standards for the discovery and development of cures, therapies, diagnostics and research technologies to relieve human suffering from chronic disease and injury.

Website:	www.cirm.ca.gov
Number of Employees:	N/A
Location:	San Francisco, United States
Founded in:	2005
Portfolio Companies:	Orchard Therapeutics

Cambridge Angels Group



The Cambridge Angels are a group of high-net worth investors who have proven experience as successful entrepreneurs in internet, software, technology and bio-technology. Members invest in and mentor high quality start-up and early-stage companies in these sectors in the Cambridge (UK) area and throughout the UK.

Typical funding requirements that the Cambridge Angels meet are in the range of £50,000 to £500,000 - although it is worth noting that several of portfolio companies have received more than £1m in funding from Members over several funding rounds.

Cambridge Angels group Members have been responsible for a large number of the “Cambridge Phenomenon” success stories over recent years. Therefore, in addition to providing funding for early-stage companies, the Cambridge Angels also offer start-ups the considerable benefit of a wide range of expertise, contacts and directly relevant experience in establishing and growing entrepreneurial businesses successfully.

Website:	www.cambridgeangels.com
Number of Employees:	N/A
Location:	Cambridge, United Kingdom
Founded in:	N/A
Portfolio Companies:	PneumaCare

Cambridge Capital Group



Cambridge Capital Group (CCG) is a leading business angel group of 70+ investors who have been investing in hi-tech businesses for more than a decade. CCG was formed in the Autumn of 2000 and has been backing tech start-ups in the region ever since. Their members have invested several millions of pounds into more than 30 live portfolio companies in the Cambridge technology cluster. Membership is an application process, normally following introductions by existing members.

Their partner networks are Anglia Capital Group and CCG International, both of which benefit from deal flow developed in Cambridge, Europe's leading hi-tech cluster.

Website:	www.cambridgecapitalgroup.co.uk
Number of Employees:	1-10
Location:	Cambridge, United Kingdom
Founded in:	2000
Portfolio Companies:	Definigen

Cambridge Innovation Capital plc



CIC combines a unique relationship with the University of Cambridge with deep financial and industry links to support rapidly growing intellectual property rich companies in the Cambridge Cluster. The company is committed to building leading businesses from brilliant technologies, with the benefit of some of the most influential figures in the sector and a patient capital structure. CIC is a preferred investor for the University of Cambridge. CIC's unique relationship with Cambridge Enterprise, the commercialisation arm of the University, provides it with exceptional access to University of Cambridge spin-outs.

CIC is predominantly, but not exclusively, focused on building healthcare and technology businesses, combining innovative technology, talented researchers and experienced entrepreneurs. CIC aims to support businesses through to maturity. This is a process which requires patience: technology businesses which grow to a billion-dollar valuation in the UK have, on average, taken over eight years to reach that valuation.

Website:	www.cicplc.co.uk
Number of Employees:	1-10
Location:	Cambridge, United Kingdom
Founded in:	2013
Portfolio Companies:	Abcodia



Catapult Ventures



Catapult specialises in providing Equity Capital for businesses requiring between £50k and £2m. The team behind Catapult Ventures are among the most experienced venture capital investors in the UK.

Catapult Ventures's experience spans a range of sectors from healthcare and pharmaceuticals to luxury consumer brands, manufacturing and software, as well as all stages: from start-ups and pre-revenue IP developers to company floatation and billions of pounds in revenue.

Catapult Ventures's administration team is equally experienced with each member having more than r10 years experience in a venture capital environment

Website:	www.catapult-ventures.com
Number of Employees:	11-50
Location:	Leicester, United Kingdom
Founded in:	1999
Portfolio Companies:	Michelson Diagnostics



Cedar Mundi Ventures



Joint venture between Spain-based Mundi Ventures and Kuwait-based International Financial Advisors. Cedar Mundi Ventures aims to be the leading VC contributing to building Lebanon as a tech hub for early and mid-stage startups engaged in the Middle East. Cedar Mundi Ventures's Raison is to build a corporate driven innovation network advocating Lebanon as a tech hub for best-in-class startups under the guidance of the Banque du Liban and to provide them with the ultimate support in growing and expanding into international markets.

Website:	http://cedarmundi.com
Number of Employees:	N/A
Location:	Beirut
Founded in:	N/A
Portfolio Companies:	Sensio Air





Celgene Corporation is a global integrated biopharmaceutical company primarily engaged in the discovery, development and commercialization of innovative therapies designed to treat cancer and immune-inflammatory related diseases in patients with limited treatment options.

There are hundreds of clinical trials at major medical centers evaluating compounds from Celgene. Investigational compounds are being studied for patients with incurable hematological and solid tumor cancers, including multiple myeloma (MM), myelodysplastic syndromes (MDS), chronic lymphocytic leukemia (CLL), non-Hodgkin's lymphoma (NHL), pancreatic cancer, non-small lung cancer and melanoma.

In addition, several compounds are being evaluated as therapies for serious inflammatory diseases such as psoriasis and psoriatic arthritis.

Website:	www.celgene.com
Number of Employees:	10001+
Location:	Summit, United States
Founded in:	1986
Portfolio Companies:	CRISPR Therapeutics33.



Launched in November 2016, Cera is a homecare provider that uses digital and artificial intelligence to transform social care. It was co-founded by Dr. Ben Maruthappu and Marek Sacha. Through Cera’s matching algorithm and automated scheduling systems, Cera is able respond to enquiries within the hour, and in 96% of cases start care on the same day when requested. Cera has significantly lower overheads compared to traditional care companies, allowing the company to pay carers up to 50% higher than the industry average, while still offering affordable rates for customers. Cera has received a number of awards including the Most Outstanding Digital Health Innovation of the Year, the LaingBuisson Dementia Care Award, the Best London Home Care Company at the Social Care Awards 2018, Disruptive Leader of the Year and Britain’s Health Startup of the Year. It is a member of the PUBLIC GovStart programme.

Website:	https://ceracare.co.uk
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	2016
Portfolio Companies:	Auriens



Charterhouse Capital Partners



Charterhouse Capital Partners LLP is a private equity firm specializing in buyout investments. The firm prefers to invest in industrial and commercial sectors with a focus on business service companies, financial services, leisure, support services, healthcare, and consumer brands. It targets companies based in Europe with a focus on Western Europe, Northern Europe, Continental Europe, United Kingdom, and Spain. The firm participates in companies with debt free worth between €400 million (\$518.64 million) and €4 billion (\$5.1864 billion). It seeks to invest between €100 million (\$148.58 million) and €1000 million

Website:	www.charterhouse.co.uk
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	N/A
Portfolio Companies:	PneumaCare

China Medical System Holdings Limited



CMS is a specialty pharmaceutical company based in China, focusing on marketing, promotion and sales of prescription drugs and other medicinal products to all therapeutic departments in hospitals nation-wide. CMS builds up its product portfolio for its target markets by asset acquisition, equity investment, licensing-in and distribution partnership on the global basis as well as in-house R&D.

Website:	www.en.cms.net.cn/
Number of Employees:	N/A
Location:	Shenzhen, China
Founded in:	1995
Portfolio Companies:	Destiny Pharma

Clarendon Fund Managers

Clarendon Fund Managers is a venture capital fund manager based in Belfast, focused on co-investments with business angel and private investor lead deals. It manages £42.5m of regional VC Funds in Northern Ireland including the £30m Co-Investment Fund and has invested in over 60 companies since it began investing in 2001. As part of the Access to Finance Strategy, Invest Northern Ireland has appointed Clarendon Fund Managers ('CFM') to manage Co-Fund NI. The aim of the Fund is to ensure that businesses with growth aspirations can access equity finance to reach their potential. Further to its successful predecessor, the second Co-Fund NI programme makes available £17.7 million to invest alongside private investors such as business angels or business angel syndicates (hereafter referred to as 'private investors' or 'syndicates') into eligible SME's based in Northern Ireland. When matched 35% with 65% private investors on a deal-by-deal basis this will give an overall 'fund' size of £50 million.

Website:	http://www.clarendon-fm.co.uk
Number of Employees:	1-10
Location:	Belfast, United Kingdom
Founded in:	2001
Portfolio Companies:	Kraydel

Clarus Ventures



Clarus Ventures is a life sciences venture capital firm founded by a team of accomplished investment professionals with extensive and complementary industry backgrounds which have enabled them to establish a long history of success in creating value. Their deep relationships with world thought leaders and decision makers allow this team to identify unique investment opportunities and shepherd them to maturity. Clarus augments its core expertise of investing in biopharmaceuticals and medical technology companies with the deep and diverse expertise of the team in research and development, commercialization, business development and operations management at the global level. Clarus has \$1.2 billion of assets under management across two lifesciences dedicated funds

Website:	www.clarusfunds.com/
Number of Employees:	11-50
Location:	Cambridge, United States
Founded in:	2005
Portfolio Companies:	Heptares Therapeutics



Clough Capital Partners



Clough Capital Partners, L.P. is a Boston-based investment management firm. Clough Capital Partners L.P., is a globally-focused investment management firm with over 2.1 billion in client assets under management (as of March 31, 2018). Clough Capital was founded in 2000 by Charles I. (“Chuck”) Clough Jr., after a 13 year career as the Chief Investment Strategist at Merrill Lynch & Co., which at the time was the world’s largest investment firm.

Clough Capital invests both long-short and long-only in public equity, fixed income and alternative markets across the globe. The Firm’s investment strategies in addition to global long-short include sector specific funds, both by geography and by industry. The Firm delivers those strategies through various investment vehicles including institutional separate accounts, pooled funds and mutual funds (both open and closed end).

Website:	http://www.cloughglobal.com/
Number of Employees:	N/A
Location:	Boston, United States
Founded in:	N/A
Portfolio Companies:	CRISPR Therapeutics



Clydesdale Bank



Clydesdale Bank provides a full range of commercial banking services for retail and institutional customers. The Bank offers savings accounts, telephone banking, insurance, investment management, loans, credit cards, cash management accounts, financial planning, mortgage, and internet banking.

Website:	secure.cbonline.co.uk
Number of Employees:	N/A
Location:	Glasgow, United Kingdom
Founded in:	2011
Portfolio Companies:	Touch Bionics

Cowen Group

COWEN

Cowen Group is a diversified financial services firm and, together with its consolidated subsidiaries, provides alternative investment management, investment banking, research, and sales and trading services through its two business segments: Ramius, LLC and its affiliates makes up the Company's alternative investment management segment, while Cowen and Company, LLC is its broker-dealer segment. Its alternative investment management products, solutions and services include hedge funds, replication products, managed futures funds, fund of funds, real estate, health care royalty funds and cash management services. Cowen and Company offers industry focused investment banking for growth-oriented companies, domain knowledge-driven research and a sales and trading platform for institutional investors. Founded in 1918, the firm is headquartered in New York and has offices located in major financial centers around the world..

Website:	www.cowen.com
Number of Employees:	N/A
Location:	New York, United States
Founded in:	1918
Portfolio Companies:	Orchard Therapeutics



Creandum



Creandum is a leading early-stage venture capital firm investing in innovative and fast-growing technology companies. The Creandum Advisory team is based in Stockholm, Berlin and Palo Alto. The Creandum funds have invested in over 50 companies including being first institutional investor in companies such as Spotify, Vivino, Cint, Edgware, IPtronics, iZettle, Videoplaza, Xeneta and many more.

Website:	http://www.creandum.com
Number of Employees:	N/A
Location:	Stockholm, Sweden
Founded in:	2003
Portfolio Companies:	Abcodia



Credo Ventures



Credo Ventures is a venture capital company focused on early stage investments in Central and Eastern Europe. It is on a mission to identify and back the most interesting early stage companies in the region, support them in their growth plans (including expansion to the U.S. / global market), and help to achieve their objectives. The company is looking for opportunities to invest in high-growth potential companies with international ambitions and competence to execute and deliver. Credo's industry focus is IT, Internet, and health.

Website:	www.credoventures.com
Number of Employees:	1-10
Location:	Prague, Czech Republic
Founded in:	2009
Portfolio Companies:	Cera



Crowdcube



Crowdcube enables individuals to invest or loan in small companies in return for equity or an annual return.

As an investment crowdfunding platform, Crowdcube enables entrepreneurs to raise finance with the added benefit of being backed by the crowd. For investors, Crowdcube provides a way to handpick a stake in an innovative business that traditionally would have been restricted to corporate investors.

Since Crowdcube first pioneered equity crowdfunding in 2011, a total of £300m has been invested through the platform from a crowd of over 390,000 investors, with more than £230m successfully invested in 520 raises. Businesses like the challenger bank Monzo, which raised £1 million in a record-breaking 96 seconds, as well as household brand names such as River Cottage and the Eden Project along with venture capital-backed businesses such as JustPark, eMoov and Sugru have all successfully raised growth funding from the crowd.

Website:	www.crowdcube.com
Number of Employees:	101-250
Location:	Exeter, United Kingdom
Founded in:	2010
Portfolio Companies:	Cell Guidance Systems



Deerfield

DEERFIELD

Deerfield is an investment management firm, committed to advancing healthcare through investment, information and philanthropy. Launched in 1994 with \$17 million in equity In 2018, Deerfield Management has funds at over \$8 billion. A portion of profits from the Deerfield funds are also donated to the Deerfield Foundation, including all of Deerfield's profits from a selected fund. Deerfield Management invests broadly in public healthcare securities, with no restrictions on the size of the company in question, or in the type of security. Deerfield typically owns equity or debt interests in more than 100 companies.

Deerfield works with companies from across the breadth of the healthcare spectrum, from early stage drug research businesses to mature healthcare service and medical device companies.

The Deerfield Institute employs a range of research methods specially built to provide us with objective, scientifically grounded primary market intelligence. Deerfield surveys, interviews and consults with thousands of professionals each year, in the effort to understand and track today's most complex healthcare issues.

Website:	www.deerfield.com
Number of Employees:	101-250
Location:	New York, United States
Founded in:	1994
Portfolio Companies:	Akari Therapeutics

Downing LLP



Downing aims to make a difference in the lives of our investment community.

Downing LLP designs & manages investment products that help investors look after their financial wellbeing, while investment partnerships support businesses in their ambitions.

So far, over 35,000 investors have been a part of what Downing LLP does, and Downing LLP is proud to have raised and invested over £1.7 billion into businesses that make a difference, including renewable energy, care homes, health clubs, and children's nurseries.

Downing is authorised and regulated by the Financial Conduct Authority.

Website:	www.downing.co.uk
Number of Employees:	101-250
Location:	London, United Kingdom
Founded in:	N/A
Portfolio Companies:	Destiny Pharma

Downing Ventures



Downing Ventures is a division of Downing LLP. Downing Ventures invests venture capital into early and growth stage technology businesses. Downing Ventures's belief is that technology now forms an integral part of the everyday lives of consumers, corporations and governments. Further, Downing Ventures believes that they are now experiencing the benefits of the second wave of technology development, which is now based on sound infrastructure. Investing into this trend, they look for: Visionary entrepreneurs, with the ability to execute as well as dream. Large (potential) addressable markets. Distinct product / service advantages. Limited adoption risk for customers. Downing Ventures seeks to invest 250,000 to 5 million per company. Downing Ventures will invest in seed-stage deals and Series A deals, and then look to continue to support those companies through phases of subsequent growth.

Website:	www.downingventures.com
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2014
Portfolio Companies:	Destiny Pharma

Draper Esprit



Draper Esprit is one of the most active venture capital firms in Europe, developing and investing in disruptive, high growth technology companies. Draper Esprit believes the best entrepreneurs in Europe are capable of building the global businesses of the future. Draper Esprit fuels growth with long- term capital, access to international networks and decades of experience building businesses. Draper Esprit backs ambitious teams including Revolut, Trustpilot, Graze, Ledger, Transferwise and Graphcore. In order to provide entrepreneurs with a more flexible approach to funding and to back them for longer, Draper Esprit is invented the traditional venture capital by itselfes going public in 2016.

Website:	www.draperesprit.com
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	2006
Portfolio Companies:	Horizon Discovery



Draper Fisher Jurvetson (DFJ)



DFJ is a VC firm that focuses on seed, venture and growth stage investments in enterprise, consumer, and disruptive technologies. DFJ works with big thinkers to bring their bold ideas to life. DFJ likes to think you can experience the DFJ difference by just walking through front door. No fancy art here – instead you'll find rockets, satellites, robots, and 3D printers – the fruits of great entrepreneurial achievement. DFJ invests in technology companies serving the needs of consumers and enterprises, as well as companies creating disruptive technologies such as commercial space exploration, robotics, and sustainable transportation. Some of investments include Baidu (Nasdaq: BIDU), Box (NYSE: BOX), Cylance, Nervana (Intel), Planet, Redfin (Nasdaq: RDFN), Ring (Amazon), Skype, SolarCity (Nasdaq: SCTY), SpaceX, Tesla Motors (Nasdaq: TSLA), Twilio (NYSE: TWLO), Twitter (NYSE: TWTR), Tumblr (Yahoo!), Unity, Yammer (Microsoft), and Zoox.

Website:	http://www.dfj.com
Number of Employees:	101-250
Location:	Menlo Park, United States
Founded in:	1985
Portfolio Companies:	Horizon Discovery



EcoR1 Capital



EcoR1 Capital is a biotech-focused investment advisory firm. EcoR1 Capital LLC is a fundamental biotechnology-focused investment advisory firm. Based in San Francisco, EcoR1 evaluates and selects extraordinary biotechnology companies that are pursuing the highest quality science and demonstrate strong business fundamentals. Like the EcoR1 restriction enzyme which helped to transform the biomedical field, EcoR1 seeks to help move medical research forward through investments into compelling biotech companies that are developing promising new solutions for untreated diseases.

Website:	ecor1cap.com
Number of Employees:	1-10
Location:	San Francisco, United States
Founded in:	2012
Portfolio Companies:	SAGE Therapeutics



Edmond de Rothschild Investment Partners



Edmond de Rothschild Investment Partners's Group is a leading investor in biotechnology and medical devices. Edmond de Rothschild Investment Partners arranges financing and assist with the development of companies and their products through the proof of concept trial stage and sales. Edmond de Rothschild Investment Partners Life Sciences team's know-how is a source of value creation for the companies and clients.

Website:	https://www.edmond-de-rothschild.com/site/International/en
Number of Employees:	N/A
Location:	Paris, France
Founded in:	N/A
Portfolio Companies:	Verona Pharma



Enterprise Ventures



Enterprise Ventures (EV) is a leading providers of venture capital and early stage finance to SMEs in England and Wales, and one of the few able to provide both equity and debt funding.

EV has a wide range of investment funds which it manages on behalf of investor clients from both the private and public sector. It invests sums of up to £2million in businesses at all stages of development, from pre-revenue & proof of concept, through to MBO/MBI opportunities and development and replacement capital.

EV is regulated by the Financial Services Authority (FSA) and are full members of the British Venture Capital Association (BVCA).

Website:	www.evgroup.uk.com
Number of Employees:	N/A
Location:	Preston, United Kingdom
Founded in:	N/A
Portfolio Companies:	Altacor



Equity Gap



Equity Gap is a group of private individuals set up to invest in and support emerging and growing businesses. Equity Gap are Edinburgh based. The group are particularly interested in assisting young companies that have achieved the SMART award and businesses that have gone through a pre investment commercialisation process. Equity Gap will consider other high growth companies but they must demonstrate a strong market and a clear investment exit strategy.

Website:	www.equitygap.co.uk
Number of Employees:	1-10
Location:	Edinburgh, United Kingdom
Founded in:	2010
Portfolio Companies:	EnteroBiotix



European Commission



European Regional Development Fund encourages innovation, enhances regeneration, and provides support to businesses in the European Union. Since the global economic and financial crisis, the EU has been suffering from low levels of investment. Coordinated efforts at European level are needed to put Europe on the path of economic recovery. The Investment Plan for Europe, the so-called Juncker Plan, focuses on creating jobs and boosting growth by making smarter use of financial resources, removing obstacles to investment and providing visibility and technical assistance to investment projects.

Website:	http://ec.europa.eu/commission/index_en
Number of Employees:	11-50
Location:	Brussels, Belgium
Founded in:	1958
Portfolio Companies:	Blue Maestro



Eurostars



This programme is a European Joint Programme dedicated to stimulating R&D performing SMEs. Eurostars supports international innovative projects led by research and development- performing small- and medium-sized enterprises (R&D-performing SMEs). With its bottom-up approach, Eurostars supports the development of rapidly marketable innovative products, processes and services that help improve the daily lives of people around the world. Eurostars has been carefully developed to meet the specific needs of SMEs. It is an ideal first step in international cooperation, enabling small businesses to combine and share expertise and benefit from working beyond national borders. Eurostars is a joint programme between EUREKA and the European Commission, co-funded from the national budgets of 36 Eurostars Participating States and Partner Countries and by the European Union through Horizon 2020. In the 2014-2020 period it has a total public budget of €1.14 billion. The role of SMEs for the economy has never been so important. Eurostars aims to bring increased value to the economy, higher growth and more job opportunities.

Website:	www.eurostars-eureka.eu
Number of Employees:	N/A
Location:	Brussels, Belgium
Founded in:	N/A
Portfolio Companies:	Sphere Fluidics



F-Prime Capital Partners



F-Prime's roots are in one of America's great entrepreneurial success stories. Fidelity Investments was founded in 1946 and grew from a single mutual fund into one of the largest asset management firms in the world, with over \$2 trillion in assets under management. For the last forty years, this venture capital group has had the privilege of backing other great entrepreneurs as they built ground-breaking companies in technology and life sciences, including Atari, MCI, ROLM Corp., Alibaba, Ironwood Pharmaceuticals, and Ultragenyx.

Today, F-Prime's funds are larger and more global, but its teams are still small and local. F-Prime stays true to its entrepreneurial roots. In the US and Europe, F-Prime Capital Partners is investing in healthcare (formerly Fidelity Biosciences) and in technology (formerly part of Devonshire Investors). In other geographies, its sister fund is called Eight Roads (formerly Fidelity Growth Partners), with investment teams in London, Shanghai, Beijing, Hong Kong, Tokyo, and Mumbai.

Together F-Prime brings a world of insight, domain expertise and relationships to support entrepreneurs. Without the pressure of fundraising from outside investors, F-Prime Capital Partners focuses all of its time finding and helping great entrepreneurs build important companies.

Website:	www.fprimecapital.com
Number of Employees:	11-50
Location:	Cambridge, United States
Founded in:	1946
Portfolio Companies:	Adaptimmune



Finance Wales



Finance Wales is formed in 2001 by the Welsh Assembly Government. Finance Wales is an independent company, providing commercial funding to Welsh SMEs. They invests private and public funds, including EU funds. Finance Wales mission is to unlock economic potential in Wales and enhance the local economy by providing sustainable, effective finance.

Website:	www.financewales.co.uk
Number of Employees:	101-250
Location:	Cardiff, United Kingdom
Founded in:	2001
Portfolio Companies:	Jellagen



Forbion Capital Partners



Forbion Capital Partners is a Netherlands-based venture capital firm focused on investing in life sciences companies in drug development as well as MedTech companies addressing high medical needs. Forbion's investment team of nine investment professionals has built an impressive performance track record since the late nineties with successful investments in Rhein Biotech, Crucell, Neutec, Glycart, Borean, Impella, Alantos, Acorda, Fovea and PanGenetics. Current assets under management exceed €400m (\$500m), split between three active funds. Finally, Forbion co-manages BioGeneration Ventures, an early stage fund focused on academic spin-outs and seed investments in the Netherlands.

Website:	http://www.forbion.com/
Number of Employees:	11-50
Location:	Naarden, The Netherlands
Founded in:	2007
Portfolio Companies:	NeRRe Therapeutics



Foresite Capital



Foresite Capital is a multi-stage healthcare and life sciences investment firm that applies rigorous scientific and data-driven approaches to investment analysis. The firm has \$2 billion under management. Foresite Capital takes a collaborative approach to investing with its portfolio companies by providing a multidisciplinary team of scientists, engineers, analysts, and clinicians who understand the unique business models in healthcare in addition to capital. The company aims to address areas of great unmet clinical need over the long term by funding promising healthcare and life sciences businesses at all stages of their life cycles. Its portfolio also emphasizes companies that are employing the tools of data science and machine intelligence in healthcare. Foresite Capital is based in San Francisco with an office in New York.

Website:	www.foresitecapital.com
Number of Employees:	11-50
Location:	San Francisco, United States
Founded in:	2011
Portfolio Companies:	Akari Therapeutics



Fountain Healthcare Partners



Fountain Healthcare Partners is an Irish based life science venture capital fund. Fountain is exclusively focused on the life science sector. Specific areas of interest to them are: specialty pharma, medical devices, biotechnology and diagnostics. They will deploy the majority of their capital in Europe with a strong focus on Ireland. Fountain Healthcare Partners invests the majority of fund in Europe and the rest in the US. Fountain Healthcare Partners bridges the continents for portfolio companies, facilitating partnerships and building international networks to help everyone succeed.

Website:	www.fh-partners.com
Number of Employees:	1-10
Location:	Dublin, Ireland
Founded in:	N/A
Portfolio Companies:	NeRRe Therapeutics



Franklin Templeton Investments



Franklin Resources, Inc. is a global investment management organization known as Franklin Templeton Investments. They have an extensive global presence, including offices in 35 countries and clients in more than 150. Their common stock is listed on the New York Stock Exchange under the ticker symbol BEN and is included in the Standard & Poor's 500:registered: Index.

Franklin Resources Inc. NYSE: BEN is an investment firm originally founded in New York in 1947 as Franklin Distributors, Inc. It is listed on the NYSE under the ticker BEN as in Benjamin Franklin, whom founder Rupert Johnson, Sr. admired. In 1973 the headquarters moved from New York to San Mateo, California.

The firm specializes in conservatively managed mutual funds. It offers products under the Franklin, Templeton, Mutual Series and Fiduciary brand names. Like other large investment companies, the firm offers a wide variety of funds but is traditionally best known for bond funds under the Franklin brand, international funds under the Templeton brand, and value funds under the Mutual Series brand.

Website:	www.franklintempleton.com
Number of Employees:	N/A
Location:	San Mateo, United States
Founded in:	1947
Portfolio Companies:	CRISPR Therapeutics



Gilde Healthcare



Gilde Healthcare is a specialized European healthcare investor managing two business lines: a lower mid-market buy-out fund and a venture & growth capital fund. It has over €800 million (\$900 million) under management and is actively looking to lead new investments in digital health, diagnostics, medical devices, therapeutics and healthcare services. Gilde successfully builds healthcare businesses across Europe and US, investing up to €35 million in a single portfolio company.

Website:	www.gildehealthcare.com
Number of Employees:	11-50
Location:	Utrecht, The Netherlands
Founded in:	1982
Portfolio Companies:	Levcept



GlaxoSmithKline



GSK is a UK-based pharmaceutical and healthcare company focusing on research to develop and distribute treatments for HIV/AIDS, TB, and malaria.

GlaxoSmithKline's goal is to be one of the world's most innovative, best performing and trusted healthcare companies. GlaxoSmithKline's strategy is to bring differentiated, high-quality and needed healthcare products to as many people as possible, with three global businesses, scientific and technical know-how and talented people.

GlaxoSmithKline's values and expectations are at the heart of everything they do and form an important part of culture.

Website:	www.gsk.com
Number of Employees:	10001+
Location:	Middlesex, United State
Founded in:	1929
Portfolio Companies:	CRISPR Therapeutics



Global Health Investment Fund (GHIF)



The Global Health Investment Fund (GHIF) is a \$108 million social impact investment fund designed to provide financing to advance the development of drugs, vaccines, diagnostics and other interventions against diseases that disproportionately burden low- and middle-income countries. GHIF supports late-stage innovations for public health challenges such as malaria, pre-eclampsia, cholera, HIV and river blindness, with an emphasis on infectious diseases and maternal/infant health issues that cause significant morbidity and mortality in resource-limited settings. GHIF may also make investments that improve or expand access to existing products—such as developing pediatric formulations of approved therapeutics or improving the stability of widely-used global health vaccines.

As an investment fund with a limited time-horizon, GHIF seeks opportunities that have a high probability of successful commercialization within two or three years. Products with “dual market” potential are of greatest interest; i.e., those that will have a clear impact on public health in developing countries but also have value in high-income countries. High-volume / low-margin products, such as essential vaccines, are also of significant interest.

GHIF employs a range of investment structures including mezzanine debt, convertible debt, preferred equity and project financing with an average investment target of approximately \$10 million per project. Each GHIF project must advance the Fund’s social impact objectives and demonstrate the ability to achieve commercial success.

Website:	www.ghif.com
Number of Employees:	N/A
Location:	New York, United States
Founded in:	2012
Portfolio Companies:	Genedrive Plc

The Goldman Sachs Group, Inc. provides investment banking, securities, and investment management services, as well as financial services to corporations, financial institutions, governments, and high-net-worth individuals worldwide. Its Investment Banking segment offers financial advisory services, including advisory assignments with respect to mergers and acquisitions, divestitures, corporate defense, risk management, and restructurings and spin-offs; and underwriting services comprising public offerings and private placements of a range of securities, loans and other financial instruments, and derivative transactions.

The company's Institutional Client Services segment provides client execution services, such as fixed income, currency, and commodities client execution related to making markets in interest rate products, credit products, mortgages, currencies, and commodities; and equities related to making markets in equity products, as well as executes and clears institutional client transactions on stock, options, and futures exchanges.

Website:	www.goldmansachs.com
Number of Employees:	10001+
Location:	New York, United States
Founded in:	1869
Portfolio Companies:	Vertex Pharmaceuticals



Grima Ventures



Grima Ventures is London based angel investors that invest in entrepreneurs with big ideas. Grima Ventures seeks to invest in markets that are ripe for disruption

Grima Ventures current portfolio ranges from sophisticated cross device messaging platforms to leading edge cloud database technology. The majority of their deals take place at either seed or pre-series A stage

Website:	http://www.grima.ventures/
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Portfolio Companies:	Vida



Guinness Asset Management



Guinness is independent and focused purely on investment management. Guinness in-house economic, industry and company research allows to take an independent view and not be led by the market. Guinness size and specialist nature also means they have the ability to respond quickly and efficiently to any market movements.

At heart Guinness Asset Management is a value (or growth at reasonable value) investor. Guinness combines strategic sector-selection with a fundamental screening process to identify stock opportunities.

None of their funds are benchmark-constrained, which means they can select stocks without the influence of index weightings. Guinness believes investment managers should have a high conviction about the stocks in their portfolio.

Website:	http://www.guinnessfunds.com
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Portfolio Companies:	Cera

Hambro Perks Ltd.

The logo for Hambro Perks, featuring the words "HAMBRO" and "PERKS" stacked vertically in a serif font, enclosed in a thin blue rectangular border.

Hambro Perks is a boutique advisory and private investment company specialising in high growth businesses and special situations.

Hambro Perks was founded by Rupert Hambro CBE (former Chairman of Hambros Bank) and Dominic Perks (serial entrepreneur) and the firm has a growing team of first-rate professionals who are passionate about helping growth businesses.

Hambro Perks's breadth and depth of experience makes us attractive thought partners and capital partners for entrepreneurs and management teams.

Hambro Perks is always delighted to meet talented individuals who are interested in working with them.

Website:	http://www.hambroperks.com
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	2011
Portfolio Companies:	Kraydel

HAX



HAX, is the first and most prolific hardware accelerator, with 200 companies launched in the past 5 years. Based in Shenzhen in order to leverage the supply chain and factory ecosystem, the program created the 'Interactive Manufacturing Process' which ensures the rapid development of manufacturable products.

It also runs a Growth Stage program in San Francisco.

The majority of the successful applicants to the accelerator come from the United States and Europe, while the 'Total HAX' event hosted in San Francisco and attended by the worlds's leading publications and investors. HAX helped with the creation of more than 90 Kickstarter campaigns, raising over \$500k on average and owning 10 of the top 100 globally.

HAX companies receive \$100,000 each.

HAX covers: invention, prototyping, sourcing, manufacturing, packaging, supply chain, strategy, marketing, distribution, fundraising, financing..

Website:	www.hax.co
Number of Employees:	11-50
Location:	Shenzhen, China
Founded in:	2011
Portfolio Companies:	Zio Health

Henderson Global Investors



Henderson Group is the holding company of the investment management group Henderson Global Investors. Henderson Group's principal place of business is in London and since December 2003 has been listed on the London Stock Exchange and Australian Securities Exchange - appearing in the FTSE 250 and ASX 100 indices. Henderson Group has approximately 40,000 shareholders worldwide. Since 31 October 2008, the Group has been incorporated in Jersey.

Established in 1934 to administer the estates of Alexander Henderson, the first Lord Faringdon, Henderson Global Investors (Henderson) is a leading independent global asset management firm. The company provides its institutional, retail and high net-worth clients access to skilled investment professionals representing a broad range of asset classes, including equities, fixed income, property and alternative investments. With its principal place of business in London, Henderson is one of Europe's largest investment managers, with £92.7bn assets under management and employs around 1000 people worldwide (as at 31 March 2016).

Website:	www.henderson.com/sites/henderson/home.aspx
Number of Employees:	1001-5000
Location:	London, United Kingdom
Founded in:	1934
Portfolio Companies:	Verona Pharma



Horizon Discovery



Horizon Discovery Group PLC is a UK life science company that uses gene editing and gene modulation platforms to produce cells, applying them in research and clinical applications that advance human health. The Company's gene editing and gene modulation platform, are able to alter almost any DNA sequence or RNA transcription, has generated a catalogue of over 1,000,000 cell and reagent products that help researchers recapitulate the genetic and protein anomalies found in diseases like cancer. These models have been adopted by c12,000 organizations to better understand of the predictors and drivers of disease and drug response, and by Horizon in a range of services offered to customers, as well as in the Company's own research R&D pipeline.

Website:	www.horizondiscovery.com
Number of Employees:	251-500
Location:	Cambridge, United Kingdom
Founded in:	2007
Portfolio Companies:	Sphere Fluidics



Hoxton Ventures

hoxton
ventures

Hoxton Ventures LLP is a venture capital firm specializing in seed, start-ups, Series A, and early stage investments. The firm seeks to invest in growing technology companies with focus on in the internet, mobile and software markets, including artificial intelligence. It prefers to invest in technology, cloud computing, online ad technology, digital media, and gaming. It seeks to invest in companies based in greater Europe and Ireland. The firm typically invests between \$0.25 million and \$2 million in its portfolio companies. The firm prefers to make four to six investments a year. It prefers to act as a minority investor and hold investments for seven to ten years. The firm prefers young, technical, and first-time founders. Hoxton Ventures, LLP is based in London, United Kingdom.

Website:	https://www.hoxtonventures.com/
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2013
Portfolio Companies:	Babylon Health



Human Longevity



Human Longevity, Inc. (HLI) is the genomic-based, health intelligence company empowering proactive healthcare and enabling a life better lived. HLI combines the largest database of genomic and phenotypic data with machine learning to drive discoveries and revolutionize the practice of medicine. HLI's business areas include the HLI Health Nucleus, a genomic powered clinical research center which uses whole genome sequence analysis, advanced clinical imaging and innovative machine learning, along with curated personal health information, to deliver the most complete picture of individual health; HLIQ™ Whole Genome and HLIQ Oncology. For more information, please visit <http://www.humanlongevity.com> or <http://www.healthnucleus.com>.

Website:	www.humanlongevity.com
Number of Employees:	501-1000
Location:	San Diego, United States
Founded in:	2013
Portfolio Companies:	Oxstem



Hygea VCT



Hygea VCT is an investment company providing investors access to a diversified portfolio of emerging and established MedTech companies. Hygea vct was launched in 2001 as BioScience VCT to invest in bioscience companies, with a particular focus on investing in treatment development companies, based on having Medical Marketing International Group plc (MMI) as the Technology Adviser. After the launch, the financing climate in the UK for treatment development companies became much more hostile. Because of this and the limited size of the fund, the board considered that the emphasis should be on medical technology companies (eg devices, drug delivery systems, diagnostics etc) requiring much less capital than treatment development companies and with the potential to become profitable much more quickly than treatment development companies.

Website:	www.hygeavct.com
Number of Employees:	N/A
Location:	Brackley, United Kingdom
Founded in:	2001
Portfolio Companies:	Scancell



Imperial Innovations is a technology commercialization and venture capital investor that focuses on technology. Imperial Innovations no longer invests in startups and now functions as the technology-transfer office of Imperial College.

Imperial Innovations is focused on commercialising leading UK academic research sourced from the 'golden triangle' formed between Cambridge, Oxford and London. We are a technology commercialisation company that combines the activities of technology transfer, intellectual property protection and licensing, company incubation and investment.

Innovations is focused on commercialising the most promising UK academic research across a broad range of technology sectors, and has developed particular expertise in: therapeutics, medtech, engineering and materials and information communication technology.

Website:	www.imperialinnovations.co.uk
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	1986
Portfolio Companies:	Cell Medica

Index Ventures



Index Ventures is a multi-stage international venture capital firm that backs the best and most ambitious entrepreneurs. These leaders are building truly transformative companies that are reshaping the world around them, including: Dropbox, Etsy, Sonos, SoundCloud, Flipboard, King, BlaBlaCar, Squarespace, Just Eat, Lookout, Hortonworks, Nasty Gal, Pure Storage, Supercell, Criteo, Funding Circle and many others.

Index is built on the sturdy foundation of a tight-knit collaborative partnership that retains a shared mission of putting entrepreneurs first. To them, full-service means the full attention of their partnership. They structurally de-emphasize individual partner achievements and provide the full partnerships' collective experience and expertise to their portfolio entrepreneurs.

They've teamed up with exceptional entrepreneurs in 38 countries around the world and have helped them grow into new regions. Their physical presence in San Francisco and London and serve as places where their entrepreneurs can come together and jumping-off points to discover what's next.

Website:	www.indexventures.com
Number of Employees:	N/A
Location:	Geneva, Switzerland
Founded in:	1996
Portfolio Companies:	Levcept

Levcept

Innovate U.K. is a NPO that offers funding services to support science and technology innovations. The organization offers services and information on births, deaths, marriages, business, self-employed, childcare, parenting, citizenship, law, disabled persons, transportation, education, environment, housing, money, tax, travel, immigration, and jobs. Innovate U.K. is based in Swindon.

Website:	www.innovateuk.gov.uk
Number of Employees:	N/A
Location:	Swindon, United Kingdom
Founded in:	N/A
Portfolio Companies:	Sphere Fluidics

Innovations New Ventures



Innovations New Ventures catalyzes the translation of Northwestern innovations to benefit the public and contribute to economic growth. INVO is a crucial part of Northwestern's innovation ecosystem.

INVO catalyzes the translation of Northwestern innovations to benefit the public and promote economic growth.

In order to maximize that outcome, Northwestern follows important principles when licensing university technology.

Northwestern inventive activity is strong, with more than 200 disclosures in 2016. INVO's work strives to strengthen entrepreneurial activity by both students and faculty and build a self-sustained community that will generate innovations to benefit society.

Website:	invo.northwestern.edu
Number of Employees:	N/A
Location:	Evanston, United States
Founded in:	2010
Portfolio Companies:	Cell Medica





Invesco Perpetual is a holding company. Through its subsidiaries, the company is engaged in the management and dealing of authorized unit trusts; management of individual savings accounts and personal equity plans; management of investment portfolios; provision of financial consulting services; property development, and investment holding. Invesco is an independent investment management firm dedicated to delivering an investment experience that helps people get more out of life. Invesco believes the best investment insights come from specialized investment teams with discrete investment perspectives, operating under a disciplined philosophy and process with strong risk oversight. Invesco's pure focus on investment management eliminates the distractions that compromise results.

Website:	www.invesco.com/portal/site/global
Number of Employees:	N/A
Location:	Henley On Thames, United Kingdom
Founded in:	1982
Portfolio Companies:	Cell Medica



Invesco Perpetual



Invesco Perpetual, is one of the largest investment managers in UK, responsible for £91.59bn worth of assets (as at 30 September 2016) on behalf of individual clients, fund platforms, nominees, pension funds and other corporate institutions. Perpetual's focus is on helping you achieve your financial objectives. Invesco Perpetual has grown to become one of the largest and best regarded investment managers in the UK. Key to success has been a relentless commitment to investment excellence and focus on helping investors achieve their financial objectives.

It's an approach that's led to an ever-widening range of funds and investment capabilities - and over 25 awards in the past three years.

Whilst Perpetual is proud of the accolades and plaudits Henley investment teams have received, what drives forward is a determination to deliver best investment ideas to clients over the long term.

Website:	www.invescopetpetual.co.uk/portal/site/ip/home
Number of Employees:	501-1000
Location:	N/A
Founded in:	N/A
Portfolio Companies:	Cell Medica



Invest Northern Ireland



Invest Northern Ireland is Northern Ireland's economic development agency. Their overall goal is to help create wealth for the benefit of the whole community by strengthening the economy and helping it grow. As the regional business development agency, Invest NI's role is to grow the local economy. Invest Northern Ireland does this by helping new and existing businesses to compete internationally, and by attracting new investment to Northern Ireland. Invest Northern Ireland is part of the Department for the Economy and provide strong government support for business by effectively delivering the Government's economic development strategies.

Website:	www.investni.com
Number of Employees:	501-1000
Location:	Belfast, United Kingdom
Founded in:	2002
Portfolio Companies:	BrainWaveBank

J.P. Morgan Securities Inc.



J.P. Morgan is a global industry leader with more than \$13.7 trillion in assets under custody and \$5.1 trillion in assets under administration. They provide innovative custody, fund accounting and administration and securities services to the world's largest institutional investors, alternative asset managers and debt and equity issuers.

They leverage scale and capabilities in more than 90 markets to help clients optimize efficiency, mitigate risk and enhance revenue through a broad range of investor services as well as securities clearance, collateral management and alternative investment services.

As a strategic partner with a long-standing commitment and proven experience, J.P. Morgan takes a consultative approach to working with clients to assess and address their individual needs.

J.P. Morgan is a leader in asset management, investment banking, private banking, treasury and securities services, and commercial banking. Today, the firm serves one of the largest client franchises in the world, including corporations, institutional investors, hedge funds, governments and affluent individuals in more than 100 countries.

Website:	http://www.jpmorgansecurities.com/
Number of Employees:	251-500
Location:	New York, United States
Founded in:	1985
Portfolio Companies:	Vertex Pharmaceuticals



JamJar Investments

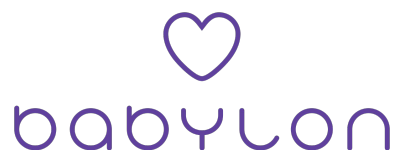


JamJar Investments is a venture capital firm that invests in high growth consumer brand businesses in both digital and non-tech.

Its combination of operational, commercial and brand experience was honed over 14 years taking innocent from scratch to sale to Coca Cola for north of half a billion £. That journey means the company understands the journey of entrepreneurs, the highs the lows, the challenges and some of the solutions.

JamJar is the consumer Venture Capital fund run by the innocent drinks founders.

Website:	http://jamjarinvestments.com/
Number of Employees:	11-50
Location:	United Kingdom
Founded in:	2012
Portfolio Companies:	babylon health



Janssen Pharmaceuticals



Janssen Pharmaceuticals is a pharmaceutical company providing medicines for an array of health concerns in several therapeutic areas.

The company conducts research and development into oncology, mental illness, neurological disorders, gastrointestinal disorders, fungal infection and allergies.

The company was founded by Dr. Paul Janssen, a leading Belgian researcher, in 1953.

Website:	www.janssen.com
Number of Employees:	10001+
Location:	Beerse, Belgium
Founded in:	N/Z
Portfolio Companies:	Vertex Pharmaceuticals



Juno Capital



Juno Capital offers asset management services to a network of wealthy individuals and family offices in the United Kingdom. The firm currently focuses on venture investment in UK based B2B SaaS businesses at the scale-up stage. Juno Capital was founded by Julian Hickman and Edward Rudd in 2011. Juno Capital is an innovative specialist alternative asset manager to a network of wealthy individuals and family offices – the “Syndicate Members”. Established in 2011, Juno Capital targets asset classes overlooked by mainstream asset managers and private banks, including venture capital, asset backed fixed income and niche property.

Website:	www.junocapital.co.uk
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2011
Portfolio Companies:	Destiny Pharma





Focusing the next generation of founders on problems worth solving.

Website:	www.kairoshq.com
Number of Employees:	1-10
Location:	New York, United States
Founded in:	2008
Portfolio Companies:	Cera

Kima Ventures



Kima Ventures is one of the world's most active early-stage investors, investing in 2 to 3 startups per week all over the world; providing founders with funding, network, and support for them to reach the next steps of their journey.

The firm invests from seed to Series A, mostly as lead investor but also working alongside other investors; backing ambitious founders who work hard to build awesome things that more and more people use everyday. The company helps them to build a great team, to learn very quickly, to keep the right focus and execute towards growth.

Kima takes pride of itself in working side-by-side with entrepreneurs. They claim to understand that fundraising is only one step in the company's journey, that's why they take quick decisions and make the fundraising process as smooth as possible so the founders can get back to the work of building their business. Kima considers itself not only an investor, but a network of founders and experts sharing a pay it forward mindset.

Website:	www.kimaventures.com
Number of Employees:	1-10
Location:	Paris, France
Founded in:	2010
Portfolio Companies:	Cera

Kinnevik AB

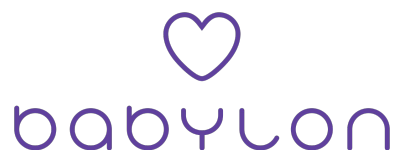


Kinnevik is an industry focused investment company with an entrepreneurial spirit. Its purpose is to build the digital consumer businesses that provide more and better choice. The company do this by working in partnership with talented founders and management teams to create, invest in, and lead fast growing businesses in developed and emerging markets.

Kinnevik believes in delivering both shareholder and social value by building well governed companies that contribute positively to society.

Kinnevik was founded in 1936 by the Stenbeck, Klingspor and von Horn families. Kinnevik's shares are listed on Nasdaq Stockholm's list for large cap companies under the ticker codes KINV A and KINV B.

Website:	https://www.kinnevik.com/
Number of Employees:	11-50
Location:	Sweden
Founded in:	1936
Portfolio Companies:	babylon health





KIZOO provides mentoring, seed and early stage financing in SaaS, Internet & Mobile Services with a growing focus on Rejuvenation Biotech. Apart from their financial resources, KIZOO is happy to share longtime experience in development, marketing and product management.

Website:	www.kizoo.com
Number of Employees:	1-10
Location:	Karlsruhe, Germany
Founded in:	2000
Portfolio Companies:	CellAge

Korea Investment Partners

true friend Korea Investment
Partners Co., Ltd.

Korea Investment Partners is a leading venture capital & private equity firm that has over 30 years of experience in providing venture capital to bold and innovative entrepreneurs who want to change the world. Korea Investment Partners invests in leading pioneers like Kakao(KOSDAQ:035720), Naver(KRX:035420), YG Entertainment(KOSDAQ:122870), Bodyfriend, Osstem Implant(KOSDAQ:048260), Doubleu Games(KOSDAQ:192080) and Didi Chuxing. KIP manages over 20 venture and private equity funds with US\$1.8 billion in total assets under management. The company operates globally from its Seoul headquarters office with other locations in Shanghai, Beijing, and Sunnyvale.

Website:	kipvc.com
Number of Employees:	11-50
Location:	Seoul, South Korea
Founded in:	2001
Portfolio Companies:	Celleron Therapeutics



KTB Network



KTB Network is an investment company specialized in offering creative and accelerated growth of companies. KTB is a professional venture investment company that seeks innovative and creative growth of the business with the most competent investment specialists group from various sectors. KTB Network investment is not limited to any one of companies' growth stage, KTB Network believes that can find role in supporting and providing values whether the company is still building its team, devising its business model, preparing for IPO or considering private placements.

Website:	www.ktbnetwork.com
Number of Employees:	N/A
Location:	Seongnam, South Korea
Founded in:	N/A
Portfolio Companies:	Celleron Therapeutics



L Marks are innovation specialists and early stage investors. We work with some of the worlds' best-known brands, including, BMW Group, Lloyd's of London, Arsenal F.C., and EDF Energy to identify the challenges in their business and create bespoke partnership and scouting projects. Having created 40 innovation labs across a variety of sectors, L Marks is the UK's largest operator of corporate accelerators and has exported its methodology into Europe, Japan, and the US.

Founded in 2012 by serial entrepreneur Stuart Marks, and led by Chief Executive, Daniel Saunders, L Marks builds bridges between corporates seeking to innovate and young companies looking to scale with disruptive tech and systemic guidance. We help nurture these opportunities for improvement into innovative solutions to sustain the future longevity of business.

L Marks works in partnership with corporates who are passionate about innovation and want to provide an environment in which young companies can flourish. We seek to invest in the participating companies – a unique approach that ensures that our interests are aligned with those of our partners and every programme is results-driven.

Website:	http://www.lmarks.com
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	2012
Portfolio Companies:	Howz

Lansdowne Partners

LANSDOWNE
— PARTNERS —

Lansdowne Partners is one of the world's leading alternative investment management organizations. Founded in 1998, the company's investment philosophy is predicated on generating consistent, absolute risk-adjusted returns, through the use of exceptional investment talent within a leading edge operational infrastructure.

Website:	https://www.lansdownepartners.com/
Number of Employees:	101-250
Location:	London, United Kingdom
Founded in:	1998
Portfolio Companies:	Benevolent AI

BenevolentAI

Lanstead Capital



Lanstead Partners Ltd. is an investment firm focused on providing new equity capital to assist publicly listed companies in meeting their objectives. These objectives could include meeting growing working capital needs, supporting new plant and equipment, funding long term research and development, facilitating growth through mergers and strategic acquisitions, and other corporate purposes.

Website:	www.lanstead.com
Number of Employees:	1-10
Location:	Sydney, Australia
Founded in:	2008
Portfolio Companies:	ImmuPharma



Lundbeck



Lundbeck is a global pharmaceutical company highly committed to improving the quality of life of people living with psychiatric and neurological disorders. For this purpose, Lundbeck is engaged in the research, development, production, marketing and sale of pharmaceuticals across the world. The company's products are targeted at disease areas such as depression, schizophrenia, Parkinson's disease and Alzheimer's disease.

According to the World Health Organization, WHO, more than 700 million cases of psychiatric and neurological disorders are reported every year. These are serious and life-threatening diseases that affect the quality of life of the patients as well as of their relatives.

As these diseases also involve major socio-economic costs, it is imperative for the general society that new and innovative pharmaceuticals are developed. Over the past 50 years, new pharmaceuticals have revolutionised the treatment options, but there remains a large unmet need for new and innovative therapeutics.

Website:	www.lundbeck.com
Number of Employees:	5001-10000
Location:	Denmark, Europe
Founded in:	2000
Portfolio Companies:	Proximagen



Lundbeckfonden Ventures



Lundbeckfond Ventures is an evergreen life science venture fund established in the autumn of 2009 and wholly owned by the Lundbeck Foundation. The structure as an evergreen fund allows flexibility in the investment approach and the possibility, when appropriate, to take a long-term perspective in the investments. On an annual basis, Lundbeckfond Ventures invests up to € 50 million.

Lundbeckfond Ventures is a financially driven venture fund generating returns to support the group's activities and operating independently from the Lundbeck Foundation's controlling ownerships in H. Lundbeck A/S, ALK-Abelló and Falck.

Website:	http://www.lundbeckfondventures.com
Number of Employees:	1-10
Location:	Copenhagen, Denmark
Founded in:	2009
Portfolio Companies:	Psioxus Therapeutics



Masa Life Science Fund



MASA Life Science Ventures, LP (MLSV) is a venture capital fund focused on adding real value to the best of private, high-growth biotechnology and life science companies. MLSV's investors include several of Japan and Korea's leading corporations and financial institutions. These investors help provide an important bridge to key markets in East Asia.

MLSV's team of investment professionals have broad experience in the biotech, pharmaceutical, medical device and healthcare industries, with many team members having more than 25 years experience in market analysis, investment evaluation and business development. MLSV's team also has deep regulatory expertise and international experience in the biotech, pharmaceutical, medical device and healthcare industries in Asia.

Website:	http://www.mlsvfund.com
Number of Employees:	N/A
Location:	Washington, United States
Founded in:	N/A
Portfolio Companies:	Cyttox

MassChallenge



MassChallenge is the most startup-friendly accelerator on the planet.

No equity and not-for-profit, MassChallenge is obsessed with helping the most-promising startups across industries and regions around the world. In addition to providing expert mentorship, tailored curriculum, and unrivaled access to corporate partners, MassChallenge awards top startups with portions of several million dollars in cash prizes.

With accelerators in Boston, Israel, Mexico, Switzerland, Texas, and the UK, MassChallenge strengthens innovation-driven economic development around the world. MassChallenge also runs Bridge to MassChallenge programs in Australia, Columbia, France, Korea, Mexico, Morocco, Poland, Russia, and Spain to drive the creation of high-quality jobs. In 2016, MassChallenge launched PULSE@MassChallenge to accelerate the impact of digital health innovation and improve patient care through technology.

To date, 1,211 MassChallenge alumni have raised over \$2 billion in funding, generated approximately \$900 million in revenue, and created over 65,000 total jobs.

Website:	https://masschallenge.org/
Number of Employees:	51-100
Location:	Boston, United States
Founded in:	2009
Portfolio Companies:	aparito

Mentor Capital



Mentor Capital, Inc. (MNTR) is a public company that invests in medical and social use cannabis companies. Mentor takes a 10% to 100% position in the various members of our family of participating companies, but leaves operating control firmly in the hands of the cannabis company founders. Because adult social use and medical marijuana opportunities often overlap, Mentor Capital participates in the legal recreational marijuana market. However, Mentor's preferred focus is medical and the company seeks to facilitate the application of cannabis to cancer wasting, calming seizures, Parkinson's disease, reducing ocular pressures from glaucoma and blunting chronic pain.

Cannabis related firms seeking a larger amount of long-term cooperative financing, for a smaller slice of their business, are encouraged to contact Mentor Capital to discuss reserving their pro rata portion of Mentor's \$140 million authorized raise.

Website:	https://www.mentorcapital.com/
Number of Employees:	11-50
Location:	Ramona, United States
Founded in:	1985
Portfolio Companies:	GW Pharmaceuticals



Mercia Technologies



Mercia is a national investment group focused on the creation, funding and scaling of innovative businesses with high growth potential from the UK regions. Mercia employs 60 people across six offices and it has one of the largest university networks in UK with 18 university partnerships across the Midlands, the North of England and Scotland. These partnerships provide access to high quality, regional deal flow which accounts for approximately one third of Mercia's investments.

Website:	www.merciatech.co.uk
Number of Employees:	11-50
Location:	Henley In Arden, Warwickshire, United Kingdom
Founded in:	2014
Portfolio Companies:	Psioxus Therapeutics



Merlin Nexus

The logo for Merlin Nexus, featuring the company name in a stylized font with a blue and green color scheme.

Merlin Nexus, based in New York, is a company focused on crossover private equity investing in the life sciences industry. Nexus Life Science Partners has been investing in private and public life sciences companies since 2001, with a proven track record of performance. Nexus Life Science Partners believes the pre- and post-IPO segment is a source of superior life sciences investment opportunities. This investment "space" generates two distinct sets of opportunities: private investments in late-stage private companies and private investments in public companies (PIPES).

Website:	http://www.merlinnexus.com/
Number of Employees:	N/A
Location:	New York, United States
Founded in:	2001
Portfolio Companies:	Adaptimmune



Ministry of Defence - UK



Ministry of Defence UK is the British government department responsible for implementing defence and headquarters the British Armed Forces.

Website:	https://www.gov.uk/government/
Number of Employees:	N/A
Location:	N/A
Founded in:	N/A
Portfolio Companies:	PneumaCare



Morgan Stanley



From the number of their offices and employees to the experience of their management and the quality of their financial results, the facts about Morgan Stanley tell an impressive story.

Morgan Stanley and its people have helped redefine the meaning of financial services. The firm has continually broken new ground in advising their clients on strategic transactions, in pioneering the global expansion of finance and capital markets, and in providing new opportunities for individual and institutional investors.

Morgan Stanley maintained comprehensive corporate governance guidelines for years before corporate governance became headline news.

Website:	www.morganstanley.com
Number of Employees:	51-100
Location:	New York, United States
Founded in:	1935
Portfolio Companies:	Vertex Pharmaceuticals



MVM Life Science Partners



MVM was founded in 1997 and manages several funds. MVM's latest fund totals more than \$200 million. MVM has a global perspective on healthcare and maintains offices in Boston and London.

MVM invests broadly across the healthcare sector, including in specialty pharmaceuticals, medical technology, diagnostics, life science tools, consumer healthcare, veterinary medicine, healthcare services, and digital health.

Website:	mvm.com
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	1997
Portfolio Companies:	Horizon Discovery



Nesta Ventures



Nesta Investments is a venture capital arm of NESTA specializing in direct and fund of fund investments. The company seeks to invest in seed, startup, early stage, growth, and expansion companies. It invests in medium term equity, quasi-equity, and debt investments.

Nesta seeks to invest in all legal structures from registered charities to companies limited by shares and private companies. The firm also prefers to invest in technology companies with a focus on engineering, information and communications technology software, information and communications technology hardware, healthcare, and cleantech.

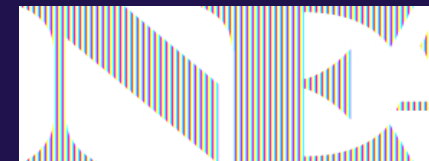
For the initial investment, the firm acts either as a lead investor in the company or part of a syndicate of co-investors. It prefers to take a board seat in its portfolio companies. For fund of fund investments, the firm invests in early stage funds as a limited partner or co-investor. It may also act as a cornerstone investor. It does not provide grants of any kind.

Nesta Investments was founded in 1997 and is based in London, United Kingdom.

Website:	http://www.nestainvestments.org.uk
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	1998
Portfolio Companies:	CellCentric



New Enterprise Associates



New Enterprise Associates, Inc. (NEA) is a global venture capital firm focused on helping entrepreneurs build transformational businesses across multiple stages, sectors and geographies. With over \$19 billion in cumulative committed capital since the firm's founding in 1977, NEA invests in technology and healthcare companies at all stages in a company's lifecycle, from seed stage through IPO. The firm's long track record of successful investing includes more than 210 portfolio company IPOs and more than 360 acquisitions.

Website:	www.nea.com
Number of Employees:	1001-5000
Location:	Menlo Park, United States
Founded in:	1977
Portfolio Companies:	Akari Therapeutics



New Leaf Venture Partners



New Leaf Venture Partners is a venture capital firm that invests primarily in healthcare technology. The company typically focuses on later stage biopharmaceutical products, early stage medical devices, and laboratory infrastructure technologies.

The New Leaf Ventures (NLV) team has been built over a decade, originating within Sprout Group, the venture capital affiliate of Credit Suisse First Boston. Sprout Group was formed in 1969 and has historically been one of the leading venture capital firms in the country. The team started to invest in healthcare technology in 1993 and since then, has become a leading venture investor in that sector. In 2005, the entire healthcare technology team of Sprout spun out into NLV.

Website:	www.nlvpartners.com
Number of Employees:	11-50
Location:	New York, United States
Founded in:	2005
Portfolio Companies:	CRISPR Therapeutics



New Wave Ventures



New Wave Ventures is a privately owned fund seeking the opportunity to invest for the long term in companies with significant growth potential. New Wave Ventures target initial investment is £500,000 to £2,000,000. New Wave Ventures invests own money without the need for external investors or borrowings. New Wave Ventures is not driven by the need to service interest charges or to dispose of our investments by an artificial deadline. New Wave Ventures does not believe in using leverage to boost returns. New Wave Ventures is willing to co-invest with like-minded investors, although their preference is to be the sole investor alongside owner-managers.

Website:	www.nwventures.co.uk
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	2010
Portfolio Companies:	Orthogem



Newable Private Investing



Having been in operation for over 30 years Newable Private Investing has developed an extensive ecosystem of investors, co-investors and partners who they work with to ensure they have an extensive pipeline of early-stage companies to work with. Investors are able to attend their Investor Events to meet entrepreneurs directly or invest in their Funds for a more passive approach. Typically Newable invests in UK-based innovative companies who qualify for investment under the Enterprise and/or Seed Enterprise Investment Schemes.

Website:	www.lbangels.co.uk
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	1982
Portfolio Companies:	Sphere Fluidics



Nextech Invest



Nextech Invest Ltd. is a venture capital and private equity firm specializing in early, mid stage and late stage, and emerging growth investments. The firm also invests in incorporation, spin-outs, reverse-take-over, and PIPE transactions. It only considers investments where evidence in preclinical animal models that a drug is efficacious is available or a device prototype fulfills the requirements. The firm seeks to invest in the field of information technology, biotechnology, healthcare with a focus on oncology companies developing cancer drugs and diagnostics. It prefers to invest in life science and enabling technologies with a focus on interdisciplinary technical and scientific projects, therapies, diagnostics, medical technologies, and services.

Website:	www.nextechinvest.com
Number of Employees:	1-10
Location:	Zürich, Switzerland
Founded in:	1998
Portfolio Companies:	Autolus Limited



NHN Investment



NHN Investment is a specialized investment organization providing investments, loans, and management as well as technological guidance to new technology enterprises and venture businesses.

Website:	http://www.nhninv.com/
Number of Employees:	N/A
Location:	Seoul, South Korea
Founded in:	2010
Portfolio Companies:	Celleron Therapeutics



NHS England



The main aim of NHS England is to improve the health outcomes for people in England. They believe the new approach they are taking will really make a difference and deliver the improved health outcomes they all want to see.

Central to their ambition is to place the patients and the public at the heart of everything they do. They are what they want the NHS to be – open, evidence-based and inclusive, to be transparent about the decisions they make, the way they operate and the impact they have.

They encourage patient and public participation in the NHS, treat them respectfully and put their interests first. This allows to develop the insight to help to improve outcomes and guarantee no community is left behind or disadvantaged.

Website:	https://www.england.nhs.uk/
Number of Employees:	5001-10000
Location:	Redditch, United Kingdom
Founded in:	2012
Portfolio Companies:	Blue Maestro



North West Fund for Biomedical



The North West Fund is a £155m evergreen investment fund established to provide debt and equity funding to small and medium sized enterprises in the North West of England. The Fund will address an identified gap in the lending, venture capital and private equity markets.

The Fund is managed by North West Business Finance Limited, an independent private sector company.

Website:	www.thenorthwestfund.co.uk
Number of Employees:	N/A
Location:	Warrington, United Kingdom
Founded in:	2010
Portfolio Companies:	Videregen



Novartis Venture Fund



Novartis Venture Fund's primary focus is on the development of novel therapeutics and platforms. Novartis Venture Fund balances the therapeutic focus with investments in medical devices, diagnostics or drug delivery systems. In their investments they look for unmet need and clinical impact, novel proprietary science and understanding of mechanism, management and board experience and capital efficiency in the program.

Novartis Venture Fund prefers to have their initial investment at the early stage to build the company and follow with additional investment in pace with the company's progress. Novartis Venture Fund continues their approach of larger focused investments and anticipate total investments up to USD 30 to 50 mio per company over its life, but it can be as little as 100'000 USD to get started. Novartis Venture Fund will increase their activities to lead or co-lead deals further and remain open to participate in larger syndicates.

Website:	www.nvfund.com
Number of Employees:	N/A
Location:	Basel, Switzerland
Founded in:	1996
Portfolio Companies:	Heptares Therapeutics



Novo Holdings

ново
holdings

Established in 1999, Novo Holdings is the holding company of the Novo Group and manages the Foundation's investment assets.

In addition to being the major shareholder in the Novo Group companies, Novo Holdings invests the wealth of the Foundation in two key categories: 1. Life Science Investments, which includes investing in life science companies at all stages of development; and 2. Financial Investments, which manages a diversified portfolio of equity and fixed income securities.

Working out of Copenhagen, San Francisco and Boston, Novo Holdings is a world-leading life science investor with a focus on creating long-term value.

The purpose of the investments of Novo Holdings is both to grow the assets of the Foundation and to deliver a return that the Foundation can distribute for scientific, social and humanitarian purposes to improve the health and welfare of people.

Website:	https://www.novoholdings.dk/
Number of Employees:	N/A
Location:	Copenhagen, Denmark
Founded in:	1999
Portfolio Companies:	Adaptimmune



NVM Private Equity



NVM Private Equity Limited is an independently-owned firm of venture capital managers with over 20 years experience of investing in UK businesses. They manage five investment funds, four of which are Venture Capital Trusts (VCTs) and their funds under management exceed Â£175 million.

Website:	http://www.nvm.co.uk/
Number of Employees:	11-50
Location:	Newcastle Upon Tyne, United Kingdom
Founded in:	1984
Portfolio Companies:	Altacor



NYU Innovation Venture Fund



NYU's seed-stage venture capital fund invests exclusively in startups founded by, and/or commercializing technologies and intellectual property developed by current NYU students, faculty, and researchers. The Fund will provide needed capital, contacts with the entrepreneurial and venture communities, and just as important, practical management and marketing expertise to transform NYU ideas and inventions into successful, growing companies. The Fund makes approximately three to four investments per year in partnership with other angel investors and seed/venture capital funds. The Fund will recycle investment returns from the successful sale of portfolio companies back into the University to finance further research and future ventures.

Website:	entrepreneur.nyu.edu/resource/innovation-ventur...
Number of Employees:	N/A
Location:	New York, United States
Founded in:	2010
Portfolio Companies:	Orca Pharmaceuticals

 Orca Pharmaceuticals

Oceania Capital Partners



Oceania Capital Partners Limited (OCP) is an investment company that provides its shareholders with investment exposure to, and returns from, investments in operating businesses. OCP pursues private equity style transactions and public market opportunities using private equity experience and disciplines.

Website:	www.oceaniacapital.com.au
Number of Employees:	N/A
Location:	Belrose, Australia
Founded in:	N/A
Portfolio Companies:	Avita Medical



Octopus Ventures



Octopus Ventures is a London and New York based venture capital firm, focused on backing unusually talented entrepreneurs. Octopus Ventures has been fortunate enough to work with the founding teams of over 60 companies, including Conversocial, graze.com, LoveFiLM, Property Partner, Secret Escapes, Sofar Sounds, SwiftKey, Swoon Editions, Uniplaces, tails.com, Zoopla Property Group and Zynstra.

Octopus Ventures can invest from £250,000 to £25 million in a first round of funding and will look to follow in subsequent rounds. Octopus Ventures is proud to be known as one of the most entrepreneur friendly investors in Europe. A significant part of portfolio consists of referrals from teams they have already invested in or serial entrepreneurs who they have previously backed.

Octopus Ventures is part of the Octopus group, one of the UK's fastest growing investment management companies with more than £6 billion of assets under management.

Website:	https://www.octopusventures.com/
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	1999
Portfolio Companies:	eTherapeutics



Odey Asset Management



Odey Asset Management is a leading London investment firm managing c. \$6bn for institutional investors, private banks & individual investors across Global & European strategies. The firm was established by Crispin Odey in 1991 to focus on active fund management with an equal emphasis on preserving capital and generating superior returns. They have worked hard to build an investment team and a client base committed to these principles and today they continue to focus on performance and not asset gathering. More than half of their 50 employees are investment professionals and the partners are amongst the largest investors in the strategies they run.

Website:	www.odey.com
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	1991
Portfolio Companies:	Chronos Therapeutics



OrbiMed is a healthcare-dedicated investment firm, with approximately \$5 billion in assets under management. OrbiMed's investment advisory business was founded in 1989 with a vision to invest across the spectrum of healthcare companies: from private start-ups to large multinational companies. OrbiMed manages the Caduceus Private Investments series of venture capital funds and a family of public equity investment funds.

Website:	www.orbimed.com
Number of Employees:	N/A
Location:	New York, United States
Founded in:	1989
Portfolio Companies:	Adaptimmune

Oxford Capital Partners

OXFORD CAPITAL

Established in 1999, Oxford Capital is an experienced technology venture capital investor based in London and Oxford. They focus on investing in a diversified portfolio of high potential pure technology and technology enabled start-up businesses.

Oxford Capital currently manages capital on behalf of private investors, family offices, endowments, pension funds, and other institutional investors.

Website:	www.oxcp.com
Number of Employees:	101-250
Location:	Oxford, United Kingdom
Founded in:	1999
Portfolio Companies:	Scancell

Oxford Technology Management



Oxford Technology Management was founded by Lucius Cary, and since 1983 has specialised in making and managing investments in start-up and early stage technology-based businesses with high growth prospects.

The OTM team are all scientists or engineers by background, and understanding the technology is the starting point for any investment that we may make.

The Investment policy of Oxford Technology Management is to construct a portfolio of investments with the following characteristics:

unlisted, UK based, technology businesses

investments typically in the range of Â£100,000 - Â£2,000,000, although it can then invest similar amounts in subsequent rounds

in most cases located within easy reach of Oxford to allow a more 'hands on' management strategy

It is expected that approximately half of the funds will be invested in early stage companies (those which have achieved some initial sales) and the balance in start-up companies which are at an earlier stage.

Website:	www.oxfordtechnology.com
Number of Employees:	N/A
Location:	Oxford, United Kingdom
Founded in:	1983
Portfolio Companies:	BioMoti



Parkwalk Advisors Ltd



Parkwalk Advisors invests in innovative UK technology companies. The firm manages a series of investment-driven venture capital funds seeking capital appreciation, with the added advantages to investors of the tax reliefs offered under the Enterprise Investment Scheme ('EIS'). Parkwalk's flagship series of EIS funds specifically invest in UK University technology spin-out companies and are designed to offer investors generous tax benefits and significant tax free growth potential.

Website:	www.parkwalkadvisors.com
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	2009
Portfolio Companies:	Sphere Fluidics



Pavilion Capital



Pavilion Capital Partners is a growth-oriented private equity investor. It provides capital and strategic support to fast growing companies in the United States and Asia. In particular, the focus is on industries experiencing high growth due to globalization, technology, or demographic trends. It actively works with company founders/management to assist in strategic initiatives, mergers and acquisitions, and eventual liquidity. Pavilion is partnered with family offices and private equity funds and is based in New York City.

Website:	www.pavilioncapital.com
Number of Employees:	N/A
Location:	New York, United States
Founded in:	1974
Portfolio Companies:	Orchard Therapeutics

Pitch@Palace



Pitch@Palace is entirely focused on the benefits for Entrepreneurs, as They take no stake in Their participants and impose no restrictions.

Pitch@Palace is truly diverse, open to Entrepreneurs at any stage, anywhere in the country, across a range of industries.

Website:	pitchatpalace.com
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2014
Portfolio Companies:	Autism Biotech



Quester Capital



Quester Capital is a Kuala Lumpur-based principal investment firm making venture capital investments in early-stage companies. The Questor team has been servicing the international expatriate community in Asia for the past 10 years. At the most basic level we are intermediaries between our clients and more than 20 of the world's largest financial institutions based in low-tax, highly regulated jurisdictions such as the Channel Islands, Luxembourg, Hong Kong and Singapore. It is important to understand that Questor doesn't actually handle our clients' money, but instead recommends specific institutions based upon our clients' requirements uncovered during a detailed fact-find.

All Questor Consultants are qualified to the international standards laid out by the Securities & Investment Institute of London* and/or by the appropriate financial services legislations laid out by the authority under which they are regulated.

Website:	www.questor-capital.com
Number of Employees:	1-10
Location:	Kuala Lumpur, Malaysia
Founded in:	1984
Portfolio Companies:	Micrima





QVentures is an investment club for sophisticated investors. QVentures' members gain access to specifically curated co-investment opportunities in early stage companies alongside the most trusted and successful investors in the market. Membership is free, however, all members are vetted in person or over the phone to ensure that they meet the membership criteria. Our investment opportunities are often off-market and typically look to raise between £500k-£5M. The community consists of sophisticated Angels and UHNWIs, Venture Capital firms and Family Offices. Membership provides a forum for the sharing of knowledge, best practice and insight from leaders across a gamut of sectors and territories. Operations are focused in London but we have international reach through our partnership with the Quintessentially Group who have 60 offices worldwide.

Website:	www.qventures.co
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	2014
Portfolio Companies:	Sphere Fluidics



QVT Financial



QVT Financial LP is a privately owned hedge fund sponsor. The firm provides its services to pooled investment vehicles. It invests in the public equity and debt markets across the globe. The firm also invests in alternative investment markets across the globe. It invests in structured finance, private placements, high yield and distressed debt to create its portfolios. The firm employs convertible arbitrage, investment grade, and capital structure arbitrage techniques along with closed-end fund arbitrage and various relative value-driven equity strategies such as risk arbitrage, fundamental relative value, statistical trades, and other special situations techniques to make its investments. QVT Financial is based in New York, New York with an additional office in London, United Kingdom.

Website:	www.qvt.com
Number of Employees:	101-250
Location:	New York, United States
Founded in:	2003
Portfolio Companies:	Akari Therapeutics

RA Capital Management

RACAPITAL

RA Capital Management is an investment advisor based in Boston specializing in the life-sciences and drug development sectors. Their team has been investing since 2002 and is comprised of professionals with training in biology, chemistry, and medicine and also has industry and business development experience at the executive and board levels. They invest in companies with promising technologies and products. Their approach is to achieve a superior understanding of data, experimental/trial design, regulatory process, and commercial potential. When appropriate, they can offer their portfolio companies leads on in-licensing opportunities and strategic partnerships, as well as insight into the demands of the public markets.

Website:	www.racap.com
Number of Employees:	11-50
Location:	Boston, United States
Founded in:	2001
Portfolio Companies:	Akari Therapeutics

Redmile Group

Redmile Group

Healthcare investment organization that does venture, growth and crossover investing across healthcare.

Website:	redmilegroup.com
Number of Employees:	N/A
Location:	San Francisco, United States
Founded in:	2007
Portfolio Companies:	Nightstar Therapeutics



Ridgeback Capital

Ridgeback Capital Management

Ridgeback Capital is a New York-based private investment company that finances public equity markets. Ridgeback Capital is a private investment company that is focused on investing in life science companies. Ridgeback was started in 2006 by Wayne Holman, MD. Dr. Holman and his team seek long term investments in private and public companies that are creating life-saving and life changing technologies.

Website:	www.ridgebackcap.com
Number of Employees:	N/A
Location:	New York, United States
Founded in:	N/A
Portfolio Companies:	Adaptimmune



Roche Venture Fund



The Roche Venture Fund is the name given to the corporate venture fund of the healthcare company Roche. Roche has allocated CHF 500 million to invest in and develop commercially successful innovative life science companies.

Roche has been investing in early stage companies as part of collaborations since the early-1990s and independent of collaborations since 2002. All equity investments made by Roche in biotech and diagnostics companies (including collaboration investments) are negotiated and managed by the Roche Venture Fund. In the past 20 years, the Roche Venture Fund has invested in over 60 companies globally. Currently, Roche Venture Fund has a portfolio of around 30 companies located in 10 countries across Europe, North America and the Pacific Region. The fund is an evergreen fund with CHF 500 million available of which approximately 40% is currently invested.

The Roche Venture Fund is a committed long-term stable investor with sufficient money reserved in their fund for follow-on financing rounds. As part of a multinational healthcare company, the Roche Venture Fund has access to considerable expertise both internally and externally.

Website:	http://www.venturefund.roche.com
Number of Employees:	N/A
Location:	Basel, Switzerland
Founded in:	2002
Portfolio Companies:	Horizon Discovery

Rock Springs Capital



Rock Springs Capital is an investment company located in Baltimore, Maryland. Its advisory activities include management services to security portfolios and portfolio management for businesses or institutional clients.

Website:	rockspringscapital.com
Number of Employees:	N/A
Location:	Baltimore, United States
Founded in:	N/A
Portfolio Companies:	Adaptimmune



RTW Investments LLC



RTW Investments invests with innovative health care companies.

Website:	http://www.rtwfunds.com
Number of Employees:	11-50
Location:	New York, United States
Founded in:	N/A
Portfolio Companies:	Orchard Therapeutics

Scottish Enterprise



Scottish Enterprise is Scotland's main economic development agency and a non-departmental public body of the Scottish Government. The firm wants to stimulate Scotland's economic ambition – creating an innovative, high-wage and highly productive economy with a competitive, international market presence and a focus on high value opportunities.

Scottish Enterprise partners with the public and private sectors to identify and exploit the best opportunities to deliver a significant, lasting effect on the Scottish economy.

Website:	www.scottish-enterprise.com
Number of Employees:	N/A
Location:	Glasgow, United Kingdom
Founded in:	N/A
Portfolio Companies:	Invizius



Seedcamp



Seedcamp is Europe's seed fund, identifying and investing early in world-class founders attacking large, global market and solving real problems using technology. Since launch a decade ago Seedcamp has invested in 260+ startups including the likes of fintech unicorn TransferWise along with some of Europe's fastest growing companies Revolut, UiPath, and wefox.

Seedcamp fast-tracks a founder's vision and creates value through immediate access to smart capital, a lifelong community of support and a global network built upon a decade's experience backing exceptional talent. Seedcamp companies have gone on to raise over \$1B+ in further funding from leading investors.

Website:	http://www.seedcamp.com
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2007
Portfolio Companies:	Patients Know Best



Seneca Partners



Seneca Partners is a middle market focused investment banking and private investing firm. Their transaction and investing experience includes most industry sectors, however has strong experience in manufacturing, healthcare and business services.

Website:	www.senecapartners.com
Number of Employees:	1-10
Location:	Birmingham, United States
Founded in:	2010
Portfolio Companies:	Cyttox

Sixth Element Capital



Sixth Element Capital is currently managing its first fund: the £70m CRT Pioneer Fund (CPF) to create the future of cancer therapy and diagnosis. CPF invests in oncology focused assets and companies and has a proprietary relationship with Cancer Research Technology (CRT). CPF's investors are the European Investment Fund and Syncona.

Website:	www.sixthelementcapital.com
Number of Employees:	N/A
Location:	Berkhamsted, United Kingdom
Founded in:	N/A
Portfolio Companies:	NeoPhore



Smith & Nephew



Smith & Nephew is an industry leader in each of our three main Global Business Units - Orthopaedic Reconstruction and Trauma, Endoscopy and Advanced Wound Management. These businesses jointly offer over 1,000 product ranges.

Smith & Nephew's global infrastructure continues to expand each year. Smith & Nephew currently operates in 32 countries and generate annual sales of \$3.4 billion. Substantial investment in their products and intensive research and development means that they are always ahead. Figures from last year show that they stand at number one as the leading company in Arthroscopy. Smith & Nephew is the second largest organisation in Advanced Wound Management and number three in Trauma and Clinical Therapies.

Website:	global.smith-nephew.com
Number of Employees:	10001+
Location:	London, United Kingdom
Founded in:	1856
Portfolio Companies:	Michelson Diagnostics



SOSV began supplying start-ups with rocket fuel 20 years ago. SOSV is now a global fund with \$300M assets under management and a staff of nearly 90 operating world-renowned accelerators in the areas of hardware, software, biology, food, robotics, medical devices, transportation, green energy, and beyond. The company has over 750 companies in the portfolio, and graduate over 150 start-ups from accelerator programs each year. The company partners with startups, mentor them at every stage of their growth, and build communities that provide lasting connections.

Website:	www.sosv.com
Number of Employees:	51-100
Location:	Princeton, United States
Founded in:	1995
Portfolio Companies:	Zio Health

SPARK Impact



SPARK Impact build world-class businesses that offer best investment return. SPARK Impact Limited is authorised and regulated in the UK by the Financial Conduct Authority. SPARK Impact Limited currently manages the Northwest Fund for Biomedical.

SPARK Impact Limited is working in partnership with the Isle of Man EDS to attract new business to the Isle of Man and to grow existing businesses.

Website:	www.sparkimpact.co.uk
Number of Employees:	1-10
Location:	Liverpool, United Kingdom
Founded in:	2011
Portfolio Companies:	Diagnostic Healthcare



SR One



SR One is the corporate venture capital arm of GlaxoSmithKline. The firm invests globally in emerging life science companies that are pursuing innovative science which will significantly impact medical care. Since 1985, SR One has invested approximately 800 million in more than 180 companies. For more information please visit www.srone.com

Website:	www.srone.com
Number of Employees:	1-10
Location:	Cambridge, United States
Founded in:	1985
Portfolio Companies:	CRISPR Therapeutics



Stanley Family Foundation



Stanley Family Foundation holds two annual conferences where invitees exchange ideas on pressing foreign policy challenges. The Stanley Foundation advances multilateral action to create fair, just, and lasting solutions to critical issues of peace and security. The foundation's work is built on a belief that greater international cooperation will improve global governance and enhance global citizenship. The organization values its Midwestern roots and family heritage as well as its role as a nonpartisan, private operating foundation.

Website:	www.stanleyfoundation.org
Number of Employees:	11-50
Location:	Muscatine, United States
Founded in:	1956
Portfolio Companies:	Heptares Therapeutics



Sustainable Development Technology Canada



At Sustainable Development Technology Canada (SDTC), they fund Canadian cleantech projects and coach the companies that lead them as they move their ground-breaking technologies to market.

SDTC's support of cleantech translates into jobs, growth, and export opportunities for Canadian companies, as well as economic, environmental and health benefits for all Canadians.

They are independent but don't work alone. A big part of their role is building and sustaining networks of partners and stakeholders from private industry, academia and governments, at home and abroad. They operate at arm's length and receive funding from the Government of Canada.

Website:	www.sdtc.ca
Number of Employees:	N/A
Location:	Ottawa, Canada
Founded in:	2001
Portfolio Companies:	Bioline



Syncona Partners LLP



Syncona Partners LLP was founded in 2012 and operates as an evergreen investment company, taking an active role in identifying, supporting and developing technologies with the potential to significantly impact the healthcare market of the future. Syncona is an investor that can take the long view when necessary, able to concentrate investment into opportunities as technology is validated.

Syncona Partners is an independent subsidiary of the Wellcome Trust who invested the initial £200m capitalisation. Syncona Partners provides financial resources to individuals and companies to advance the Wellcome Trust's vision of achieving extraordinary improvements in human and animal health by supporting the brightest minds in biomedical research and the medical humanities.

Website:	www.synconapartners.com
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	2012
Portfolio Companies:	Nightstar Therapeutics



Takeda Ventures



TVI's mission is to identify, help create and support the development of therapeutic innovation that aligns with Takeda's own strategic imperatives. They do this by investing in technology and product concepts, and highly effective teams that can turn ideas into reality. Their primary focus is on medium to longer term returns in the form of product and technology successes for their portfolio companies and capital gains for the financial institutions they work with. As a Pharma strategic investor, TVI aims to provide support and guidance to entrepreneurs and early-stage companies driving concepts from preclinical through clinical proof of concept. They also strive to forge active, collaborative interactions that result in synergies with Takeda's considerable R&D resources.

TVI is based in Palo Alto, California and is actively seeking global investment opportunities. Their goal is to build a portfolio of strategic investments, with an immediate emphasis on cardiometabolic, central nervous system, chronic inflammatory and immune modulation, and oncology therapeutic domains. Their focus also includes new platforms for drug target and biomarker identification, regenerative medicines, innovative vaccines technologies and delivery systems for novel protein and peptide therapeutics.

Website:	www.takedaventures.com
Number of Employees:	1-10
Location:	Palo Alto, United States
Founded in:	2001
Portfolio Companies:	Heptares Therapeutics



Technology Venture Partners



Technology Venture Partners is one of Australia's leading venture capital firms. TVP is specialized in investment in the information, communication and new media ('ICM') technology sectors. The TVP team has a mix of investment, business management and entrepreneurial skills gained from their global experience in the US, Europe, Asia and Australia. As of April 2008, TVP manages A\$190 million in funds, including TVP#3; the largest ICM fund raised in Australia (\$144 million).

Website:	http://www.tvp.com/
Number of Employees:	N/A
Location:	Pyrmont, Australia
Founded in:	1997
Portfolio Companies:	Micrima



Techstart is a seed investment partner for the best and most ambitious entrepreneurial founding teams in Northern Ireland.

As a team, it works tirelessly to help our companies win customers, make key hires, and develop strategies and tactics to achieve the fastest possible growth in the value of the company. It seeks to be trusted peers and partners to help entrepreneurs realize their vision with experienced and timely support.

Website:	www.techstartni.com
Number of Employees:	N/A
Location:	Belfast, United Kingdom
Founded in:	N/A
Portfolio Companies:	BrainWaveBank



Temasek Holdings

TEMASEK

Incorporated in 1974, Temasek is an investment company based in Singapore, with a S\$242 billion (US\$180 billion; €158 billion; HK\$1.40 trillion; £125 billion) portfolio as at 31 March 2016.

Temasek's portfolio covers a broad spectrum of sectors: telecommunications, media & technology; financial services; transportation & industrials; consumer & real estate; life sciences & agriculture; energy & resources. Its investment themes reflect Temasek's perspectives on long term trends:

- Transforming Economies;
- Growing Middle Income Populations;
- Deepening Comparative Advantages; and
- Emerging Champions

Website:	www.temasek.com.sg
Number of Employees:	501-1000
Location:	Singapore, Singapore
Founded in:	1974
Portfolio Companies:	Orchard Therapeutics

Teva Pharmaceutical Industries



Teva Pharmaceutical Industries Ltd. is a global pharmaceutical company specializing in the development, production and marketing of generic and proprietary branded pharmaceuticals and active pharmaceutical ingredients. Teva is among the top 20 pharmaceutical companies and among the largest generic pharmaceutical companies in the world.

Website:	www.tevapharm.com
Number of Employees:	501-1000
Location:	Petah Tiqva, Israel
Founded in:	1901
Portfolio Companies:	Heptares Therapeutics



The Capital Fund



The Capital Fund is a Â£50 million venture capital fund which backs fast-growing, small and medium-sized enterprises (SMEs) in Greater London. The Fund is the largest of the nine Regional Venture Capital Funds and has a mixture of public and private investors.

Website:	www.thecapitalfund.co.uk
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	N/A
Portfolio Companies:	Plasticell



The Discovery Fund, Cambridge University



The Discovery Fund, Cambridge University aims to educate students mentored by the worlds leading thinkers. Since the University was founded in 1209 the work of Cambridge scholars has had a profound effect upon the world. Cambridge scholars pioneered new interpretations of scripture, identified the building blocks of life, the origins of the universe and the origins of man. They invented the computer and the web cam, the rules of football and the jet engine. The impact of all of these things ancient and modern continues to resound around the world, just as our current work in clean energy, transport and food security will touch the lives of millions for generations yet to come.

Website:	www.philanthropy.cam.ac.uk
Number of Employees:	N/A
Location:	Cambridge, United Kingdom
Founded in:	N/A
Portfolio Companies:	PneumaCare



The North West Fund



The North West Fund is a £155m evergreen investment fund established to provide debt and equity funding to small and medium sized enterprises in the North West of England. The Fund will address an identified gap in the lending, venture capital and private equity markets.

The Fund is managed by North West Business Finance Limited, an independent private sector company.

Website:	www.thenorthwestfund.co.uk
Number of Employees:	N/A
Location:	Warrington, United Kingdom
Founded in:	2010
Portfolio Companies:	CellCap Technologies

Third Rock Ventures



Third Rock Ventures invests in transformational life science companies that show high growth potential and are well-positioned to make a difference in the marketplace. Third Rock Ventures discovers, launches and builds great companies based on bold ideas that meet at the intersection of science, strategy, business and medicine - where transformational science meets operational reality - providing the best opportunity to make a dramatic difference in patients' lives.

Website:	www.thirdrockventures.com
Number of Employees:	11-50
Location:	Boston, United States
Founded in:	2007
Portfolio Companies:	SAGE Therapeutics



Touchstone Innovations



Touchstone Innovations create, build and invest in pioneering technology companies and licensing opportunities developed from outstanding scientific research focusing on the 'Golden Triangle' of London, Cambridge and Oxford.

Their robust strategy and fully integrated business model, proven over many years, begins with original idea and extends through intellectual property (IP) protection, company formation, seed funding, incubation, scale-up and supportive investment.

This provides us with a unique insight into leveraging early-stage research and turning it into substantial, high-quality, well-managed and well-funded commercial businesses.

They help scientists and entrepreneurs to commercialise their idea by protecting and licensing intellectual property, leading the formation of new companies, recruiting high-calibre management teams and providing and supporting investment.

Website:	www.touchstoneinnovations.com
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	N/A
Portfolio Companies:	Cell Medica

Twist Bioscience



At Twist Bioscience Corporation, they work in service of customers who are changing the world for the better. In fields such as health care, agriculture, industrial chemicals and data storage, by using our synthetic DNA tools, their customers are developing ways to better lives and improve the sustainability of the planet. They believe that the faster their customers succeed, the better for all of them, and Twist Bioscience is uniquely positioned to help accelerate their efforts. Their innovative silicon-based DNA Synthesis Platform provides precision at a scale that we believe is otherwise unavailable to their customers. Their platform technologies overcome inefficiencies and enable cost-effective, rapid, precise, high-throughput synthesis and sequencing, providing both the quality and quantity of the tools they need to rapidly realize the opportunity ahead.

Website:	www.twistbioscience.com
Number of Employees:	11-50
Location:	San Francisco, United States
Founded in:	2013
Portfolio Companies:	Sphere Fluidics



UCL Technology Fund



The UCL Technology Fund is dedicated to investing in intellectual property commercialisation opportunities arising from UCL's world-class research base, focusing in particular on the physical and life sciences. The Fund supports UCL in achieving the full potential of innovations that have prospects for outstanding societal and market impact, right through the development journey from initial proof of concept to practical commercial application.

Website:	www.ucltf.co.uk
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	N/A
Portfolio Companies:	Orchard Therapeutics





UCLB the access point to the wealth of innovation and intellectual property emanating from UCL and partner hospitals including University College Hospital, Great Ormond Street Hospital, Royal Free Hospital and Moorfields Eye Hospital. They offer a number of services to assist the technology development process, from consultancy through to collaborative research, IP licensing and the creation of spinout companies and joint ventures to maximise the commercial potential of new discoveries, materials and processes.

Website:	www.uclb.com
Number of Employees:	11-50
Location:	London, United Kingdom
Founded in:	N/A
Portfolio Companies:	Abcodia



UK Innovation & Science Seed Fund



UK Innovation & Science Seed Fund, an early-stage venture capital fund, offers investment. The UK Innovation & Science Seed Fund is backed by the Department for Business, Energy and Industrial Strategy and the Fund's partners are 9 publicly funded research bodies, including STFC, BBSRC, NERC and Dstl. The Fund is independently managed by venture capital specialist Midven.

UK Innovation & Science Seed Fund helps build companies from great science developed in laboratories, science and technology campuses and synthetic biology.

UK Innovation & Science Seed Fund holds investments in some of the UK's most innovative companies, in areas as diverse as novel antibiotics, research into Alzheimer's disease, "green" chemicals and airport security.

Website:	https://ukinnovationscienceseedfund.co.uk/
Number of Employees:	N/A
Location:	Didcot, United Kingdom
Founded in:	2002
Portfolio Companies:	Eagle Genomics



UK Trade & Investment (UKTI)



UKTI works with UK based businesses to ensure their success in international markets through exports. They encourage and support overseas companies to look at the UK as the best place to set up or expand their business.

Website:	https://www.gov.uk/government/organisations/uk-trade-investment
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	N/A
Portfolio Companies:	Blue Maestro



University of Bristol Enterprise Fund

The University of Bristol Enterprise Fund will co-invest alongside the University's own funds, taking advantage of the infrastructure and expertise already in place. The Fund will provide the private investor with an opportunity to invest in early stage technology companies as they spin-out of the University, while supplying additional finance to ensure that companies are properly resourced for the initial stages of commercial product development.

Website:	http://parkwalkadvisors.com/pw_ubef/
Number of Employees:	N/A
Location:	Bristol, United Kingdom
Founded in:	N/A
Portfolio Companies:	Micrima



University of Cambridge Enterprise



University of Cambridge Enterprise, also known as Cambridge Enterprise Seed Funds, consisting of the Challenge Fund and the Venture Fund, is a resource for members of the University of Cambridge and the Babraham Institute. Investments are priced and structured competitively with other sources of early stage seed capital in order to encourage co-investment, follow-on funding and commercialisation of University of Cambridge and Babraham Institute inventions.

Website:	www.enterprise.cam.ac.uk/seedfund.php
Number of Employees:	N/A
Location:	Cambridge, United Kingdom
Founded in:	1972
Portfolio Companies:	Horizon Discovery



University of Edinburgh



The University of Edinburgh, founded in 1583, is the sixth-oldest university in the English-speaking world and one of Scotland's ancient universities. It was the fourth university to be established in Scotland and the sixth in the United Kingdom, and is regarded as one of the most prestigious universities in the world.

Website:	www.ed.ac.uk
Number of Employees:	10001+
Location:	Edinburgh, United Kingdom
Founded in:	1583
Portfolio Companies:	Sphere Fluidics

University of Oxford



UNIVERSITY OF
OXFORD

Oxford is a collegiate university, consisting of the central University and colleges. The central University is composed of academic departments and research centres, administrative departments, libraries and museums. The 38 colleges are self-governing and financially independent institutions, which are related to the central University in a federal system. There are also six permanent private halls, which were founded by different Christian denominations and which still retain their Christian character.

The collegiate system is at the heart of the University's success, giving students and academics the benefits of belonging both to a large, internationally renowned institution and to a small, interdisciplinary academic community. It brings together leading academics and students across subjects and year groups and from different cultures and countries, helping to foster the intense interdisciplinary approach that inspires much of the outstanding research, [dissertation help](https://www.dissertationcorp.co.uk/) achievement of the University and makes Oxford a leader in so many fields.

Website:	ox.ac.uk
Number of Employees:	N/A
Location:	Oxford, United Kingdom
Founded in:	1096
Portfolio Companies:	Adaptimmune





UnLtd is the leading provider of support to social entrepreneurs in the UK and offers the largest such network in the world. UnLtd resources hundreds of individuals each year through its core Awards programme. UnLtd operates a unique model by investing directly in individuals and offering a complete package of resources; from Awards of funding, to ongoing advice, networking and practical support.

UnLtd supports individuals who have their ventures firmly rooted in delivering positive social change. The Global Entrepreneurship Monitor (Harding and Harding 2008) found that there were 1.7m people leading social organisations in the UK. UnLtd resource community entrepreneurs to start-up; support those with more established ventures to scale up; and are committed to developing an eco-system of support to make it easier for those who need help to find it.

Website:	https://www.unltd.org.uk/
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	2001
Portfolio Companies:	Patients Know Best



Upsher Smith Laboratories

UPSHER-SMITH

Partners in Health Since 1919

Upsher-Smith Laboratories, LLC is a trusted U.S. pharmaceutical company that has strived to deliver quality, affordable generic medications for nearly a century. Upsher-Smith Laboratories, LLC is a trusted U.S. pharmaceutical company that strives to improve the health and lives of patients through an unwavering commitment to high-quality products and sustainable growth. Upsher-Smith Laboratories's heritage is generics, and since 1919, they've formulated and manufactured specialty generics for a wide array of customers, backed by our attentive level of service, their strong industry relationships, and their dedication to uninterrupted supply.

Website:	http://www.upsher-smith.com
Number of Employees:	501-1000
Location:	Maple Grove, United States
Founded in:	1919
Portfolio Companies:	Benevolent AI

BenevolentAI

venBio invests in promising companies at various stages: from early to late stage, and from academic startups to spinouts. We tend to lead most of our investments, and we enjoy building syndicates and teams.

venBio Partners is mindful of potential acquisition partners from the outset, and venBio Partners ensures that their companies are best positioned to meet their requirements. This includes IP, CMC, and the details of clinical trials, including indication, trial design, endpoints, powering, and regulatory considerations. venBio Partners team's expertise and involvement helps companies make a bigger impact, and this leads to impactful and lasting relationships with the leaders that they work with.

Website:	venbio.com
Number of Employees:	N/A
Location:	San Francisco, United States
Founded in:	N/A
Portfolio Companies:	Adaptimmune



Venrock



Originally established as the venture capital arm of the Rockefeller family in 1969, Venrock continues a tradition of partnering with entrepreneurs to establish successful, enduring companies. With a primary focus on technology and healthcare, portfolio companies have included Apple Computer, Athenahealth, Centocor, Check Point Software, DoubleClick, Endeca, Gilead Sciences, Idec Pharma, Imperva, Illumina, Intel, Nest, SlideShare and Tudou.

Website:	www.venrock.com
Number of Employees:	11-50
Location:	Palo Alto, United States
Founded in:	1969
Portfolio Companies:	Akari Therapeutics

Versant Ventures



Versant Ventures offers early- and later-stage investment services to firms in the healthcare sector.

The company offers early-, later-, private equity, and debt financing venture investment services to its clients. Its portfolio of clients consist of biotechnology, medical devices, additional investments, and discovery engines.

Versant Ventures was founded in 1999 by Samuel Colella, Donald Milder, William Link, Brian Atwood, Rebecca Robertson, and Barbara Lubash and is based in California.

Website:	www.versantventures.com
Number of Employees:	N/A
Location:	Menlo Park, United States
Founded in:	1999
Portfolio Companies:	CRISPR Therapeutics



Vertex Pharmaceuticals



Vertex Pharmaceuticals Incorporated is a global biotechnology company committed to the discovery and development of breakthrough small molecule drugs for serious diseases. The Company's strategy is to commercialize its products both independently and in collaboration with major pharmaceutical companies. Vertex's product pipeline is focused on viral diseases, cystic fibrosis, inflammation, autoimmune diseases, cancer, and pain

Website:	www.vrtx.com
Number of Employees:	1001-5000
Location:	Abingdon, United Kingdom
Founded in:	1989
Portfolio Companies:	CRISPR Therapeutics



Vivo Capital



Vivo Capital is a healthcare focused investment firm formed in 1996 with over \$1 billion* under management. Vivo Capital is currently making investments from its \$375M seventh fund into promising private and public healthcare companies in the U.S. and greater China.

Vivo employs a unique multi-pronged strategy of identifying and working with companies with promising development stage and commercial stage therapeutic products in the U.S. and revenue stage companies in China. Vivo Capital has offices in Palo Alto, California, Shanghai, Chengdu, and Beijing, China.

With over 100 years of scientific expertise and operating experience in healthcare, Vivo makes investment decisions for the Funds and helps its portfolio companies develop corporate strategy, facilitate strategic alliances including cross-border partnerships, recruit management, and acquire new products and technologies to accelerate growth. Vivo's current portfolio includes more than 80 private and public biotechnology companies in the areas of biopharmaceuticals, specialty pharmaceuticals, and medical devices.

Website:	bioasia.com
Number of Employees:	N/A
Location:	Palo Alto, United States
Founded in:	1997
Portfolio Companies:	Akari Therapeutics

Wellcome Trust



Wellcome Trust is a UK-based medical research charity that funds research with the ultimate aim of protecting and improving human and animal health. They fund UK and international research. Wellcome exists to improve health for everyone by helping great ideas to thrive.

Wellcome is a global charitable foundation, both politically and financially independent. Wellcome supports scientists and researchers, take on big problems, fuel imaginations, and spark debate

Website:	wellcome.ac.uk
Number of Employees:	N/A
Location:	London, United Kingdom
Founded in:	1936
Portfolio Companies:	Cell Medica



Wellington Management

WELLINGTON
MANAGEMENT®

Wellington Management offers comprehensive investment management capabilities that span nearly all segments of the global capital markets. Wellington Management's investment solutions, tailored to the unique return and risk objectives of institutional clients in more than 50 countries, draw on a robust body of proprietary research and a collaborative culture that encourages independent thought and healthy debate. As a private partnership, Wellington Management believes ownership structure fosters a long-term view that aligns our perspectives with those of their clients.

At Wellington Management, their focus is on investment management. Wellington Management applies their full resources to meeting the needs of the institutional clients we serve.

Website:	www.wellington.com
Number of Employees:	N/A
Location:	Boston, United States
Founded in:	1970
Portfolio Companies:	CRISPR Therapeutics, Adaptimmune



White Rose Technology Seedcorn Fund



The White Rose Technology Seedcorn Fund is an early stage seedcorn fund, which invests in exciting new technology emerging from the Universities of York, Leeds and Sheffield. Their portfolio of investee companies represent the commercialisation of high quality science and technology combined with professional management teams to produce investor-ready and partner-ready opportunities.

Website:	https://www.whiterose.ac.uk/
Number of Employees:	N/A
Location:	Glasgow, United Kingdom
Founded in:	1999
Portfolio Companies:	Tissue Regenix



Winton Ventures



Winton Ventures is an early-stage venture capital firm and is part of the Winton Group. They are based in London and look to invest across Europe in start-ups that are utilising data and data science to pursue industry-changing breakthroughs in their respective domains.

Winton Ventures invests primarily in companies active in the areas of Data Science, Machine Intelligence and Cyber Security. Alongside their dedicated Ventures team, Winton Ventures leverage Winton's extensive experience and in-house know-how in data science to make better investment decisions and to actively support their portfolio companies.

Website:	winton.vc
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2015
Portfolio Companies:	Phico Therapeutics



Woodford Investment Management

woodford

Woodford Investment Management LLP is authorised and regulated by the Financial Conduct Authority. The trust currently intends to conduct its affairs so that its securities can be recommended by IFAs to ordinary retail investors in accordance with the FCA's rules in relation to non-mainstream investment products and intends to continue to do so for the foreseeable future. The securities are excluded from the FCA's restrictions which apply to non-mainstream investment products because they are shares in an investment trust.

Website:	woodfordfunds.com
Number of Employees:	N/A
Location:	Oxford, United Kingdom
Founded in:	N/A
Portfolio Companies:	Autolus Limited

Autolus

Wren Capital



Medyog is an online diagnostic centre. Wren is an angel investor in science, engineering and software. Wren was founded in 2011 and have invested in 29 companies so far. Wren is well known in the early stage investment community and has co-invested with a wide range of both angel and institutional investors.

From software and semiconductors to genome editing, and from medical devices to satellites, Wren is interested in sectors where technical ingenuity and hard work can produce long term value.

Wren looks for people with a deep understanding of their markets.

Website:	www.wrencapital.co.uk
Number of Employees:	1-10
Location:	London, United Kingdom
Founded in:	2010
Portfolio Companies:	Horizon Discovery



Xenos (Acquired by Actuate)



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Location:	Richmond Hill, Canada
Founded in:	1979
Portfolio Companies:	Jellagen



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Website:	http://yabeo.de
Number of Employees:	N/A
Location:	Grünwald, Germany
Founded in:	N/A
Portfolio Companies:	Cera

Articles on Longevity Published by British Scientists

List of publications

1. The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease.
2. The age distribution of cancer and a multi-stage theory of carcinogenesis.
3. The role of oxidative stress in the pathogenesis of age-related macular degeneration.
4. The association between quantitative measures of dementia and of senile change in the cerebral grey matter of elderly subjects.
5. Interactions between glutamatergic and monoaminergic systems within the basal ganglia--Implications for schizophrenia and Parkinson's disease.
6. Early-onset Alzheimer's disease caused by mutations at codon 717 of the beta-amyloid precursor protein gene.
7. Folate, vitamin B12, and serum total homocysteine levels in confirmed Alzheimer disease.
8. A DNA damage checkpoint response in telomere-initiated senescence
9. Selective loss of central cholinergic neurons in Alzheimer's disease.
10. Basal lipid peroxidation in substantia nigra is increased in Parkinson's disease.
11. Research criteria for the diagnosis of Alzheimer's disease: Revising the NINCDS-ADRDA criteria.
12. Body fat assessed from total body density and its estimation from skinfold thickness: Measurements on 481 men and women aged from 16 to 72 years.
13. Ageing and Parkinson's disease: Substantia nigra regional selectivity.
14. Global prevalence of dementia: A Delphi consensus study.
15. The relevance of the Lewy body to the pathogenesis of idiopathic Parkinson's disease.
16. Segregation of a missense mutation in the amyloid precursor protein gene with familial Alzheimer's Disease.
17. Multiple isoforms of human microtubule-associated protein tau: Sequences and localization in neurofibrillary tangles of Alzheimer's disease.
18. A voxel-based morphometric study of ageing in 465 normal adult human brains.
19. Effect of age and high blood pressure on baroreflex sensitivity in man.
20. Cerebral blood flow in dementia.
21. The moulding of senescence by natural selection.
22. Telomere reduction in human colorectal carcinoma and with ageing.
23. Accuracy of clinical diagnosis of idiopathic Parkinson's disease: A clinico-pathological study of 100 cases.
24. Identification of a novel aspartic protease (Asp 2) as beta-secretase.
25. Oxidative stress in Parkinson's disease.
26. Why do we age?
27. Age-specific relevance of usual blood pressure to vascular mortality: A meta-analysis of individual data for one million adults in 61 prospective studies.
28. Electrical stimulation of the subthalamic nucleus in advanced Parkinson's disease.
29. Instability and decay of the primary structure of DNA.
30. Consensus guidelines for the clinical and pathologic diagnosis of dementia with Lewy bodies (DLB): Report of the consortium on DLB international workshop.
31. An unsolved problem of biology.
32. A pathogenic mutation for probable Alzheimer's disease in the APP gene at the N-terminus of beta-amyloid.
33. Neuropathology of human Alzheimer disease after immunization with amyloid-beta peptide: A case report.
34. The maintenance of the accuracy of protein synthesis and its relevance to ageing.
35. Cloning of the gene containing mutations that cause PARK8-linked Parkinson's disease.
36. A five-year study of the incidence of dyskinesia in patients with early Parkinson's disease who were treated with ropinirole or levodopa.
37. Transition metals, ferritin, glutathione, and ascorbic acid in parkinsonian brains.
38. Macrophage phagocytosis of aging neutrophils in inflammation. Programmed cell death in the neutrophil leads to its recognition by macrophages.
39. Mitochondrial complex I deficiency in Parkinson's disease.
40. Pravastatin in elderly individuals at risk of vascular disease (PROSPER): A randomised controlled trial.
41. alpha-Synuclein in filamentous inclusions of Lewy bodies from Parkinson's disease and dementia with lewy bodies.
42. Alpha-synuclein in Lewy bodies.
43. Binding of human apolipoprotein E to synthetic amyloid beta peptide: Isoform-specific effects and implications for late-onset Alzheimer disease.
44. Observations on the brains of demented old people.
45. p53 mutant mice that display early ageing-associated phenotypes.
46. Hereditary early-onset Parkinson's disease caused by mutations in PINK1.
47. Free radicals and antioxidants in normal physiological functions and human disease.
48. Questioning Macular Pigment Measurement Methods and Genetic Risk of Age-Related Macular Degeneration.
49. Tau proteins of Alzheimer paired helical filaments: abnormal phosphorylation of all six brain isoforms.
50. Sequencing of exons 16 and 17 of the beta-amyloid precursor protein gene in 14 families with early onset Alzheimer's disease fails to reveal mutations in the beta-amyloid sequence.

<p>The name of the article</p>	<p>The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease.</p>	
<p>Authors</p>	<p>Albert MS et.al.</p>	
<p>Publication info</p>	<p>Year: 2011 Volume: 7(3) Pages: 270-9</p>	
<p>Description</p>	<p>The National Institute on Aging and the Alzheimer's Association charged a workgroup with the task of developing criteria for the symptomatic predementia phase of Alzheimer's disease (AD). The workgroup developed two sets of criteria: (1) core clinical criteria that could be used by healthcare providers without access to advanced imaging techniques or cerebrospinal fluid analysis, and (2) research criteria that could be used in clinical research settings, including clinical trials. The second set of criteria incorporate the use of biomarkers based on imaging and cerebrospinal fluid measures. The final set of criteria for mild cognitive impairment due to AD has four levels of certainty, depending on the presence and nature of the biomarker findings. Considerable work is needed to validate the criteria that use biomarkers and to standardize biomarker analysis for use in community settings.</p>	

<p>The name of the article</p>	<p>The age distribution of cancer and a multi-stage theory of carcinogenesis.</p>	
<p>Authors</p>	<p>Armitage P, Doll R.</p>	
<p>Publication info</p>	<p>Year: 1954 Volume: 8(1) Pages: 1-12</p>	
<p>Description</p>	<p>Attempts to derive theoretical laws from changes in the death rate with age have a long history. They have not, in general, been very fruitful and there has -been some hesitation in applying the technique to the study of cancer. Recently, however, two hypotheses about the mechanism of carcinogenesis have been put forward, which have been derived from analysis of cancer mortahty statistics. Fisher and HoRomon (1951) used statistics from the United States for cancer of the stomach in women, and Nordling (l 953), classing all sites together, used statistics for cancer in men from Britain, France, Norway and the U.S.A. Both found that, within the age group 25-74 years, the logarithm of the death rate increased in direct proportion to the logarithm of the age, but about six times as rapidly; in other words, the death rate increased proportionany with the sixth power of the age. Death rates in some age groups under 24 years were. higher than would be expected had this basis been a general law throughout lffe. Rates for the age groups above 75 years were considered unreliable and were excluded.</p>	

The name of the article

The role of oxidative stress in the pathogenesis of age-related macular degeneration.

Authors

Beatty S et.al..

Publication info

Year: 2000

Volume: 45(2)

Pages: 115-34

Description

Age-related macular degeneration (AMD) is the leading cause of blind registration in the developed world, and yet its pathogenesis remains poorly understood. Oxidative stress, which refers to cellular damage caused by reactive oxygen intermediates (ROI), has been implicated in many disease processes, especially age-related disorders. The retina is particularly susceptible to oxidative stress because of its high consumption of oxygen, its high proportion of polyunsaturated fatty acids, and its exposure to visible light. In vitro studies have consistently shown that photochemical retinal injury is attributable to oxidative stress and that the antioxidant vitamins A, C, and E protect against this type of injury. Furthermore, there is strong evidence suggesting that lipofuscin is derived, at least in part, from oxidatively damaged photoreceptor outer segments and that it is itself a photoreactive substance. However, the relationships between dietary and serum levels of the antioxidant vitamins and age-related macular disease are less clear, although a protective effect of high plasma concentrations of alpha-tocopherol has been convincingly demonstrated. Macular pigment is also believed to limit retinal oxidative damage by absorbing incoming blue light and/or quenching ROIs. Many putative risk-factors for AMD have been linked to a lack of macular pigment, including female gender, lens density, tobacco use, light iris color, and reduced visual sensitivity. The concept that AMD can be attributed to cumulative oxidative stress is enticing, but remains unproven.



The name of the article

The association between quantitative measures of dementia and of senile change in the cerebral grey matter of elderly subjects.

Authors

Blessed G, Tomlinson BE, Roth M.

Publication info

Year: 1968
Volume: 114(512)
Pages: 797-811

Description

The association between plaque counts in sections of cerebral cortex and measures of intellectual and personality functioning undertaken in elderly subjects during life has been studied. There was no evidence that degenerative changes had contributed significantly to the causation of illness in patients with "functional" psychiatric disorders or delirious states. There is a highly significant correlation between mean plaque counts and scores for dementia and performance in psychological tests. The findings suggest that psychological and pathological indices are closely related to one another, possibly through their common association with the underlying degenerative process in the brain. Among severely demented subjects and those diagnosed clinically as "senile dements", correlations between psychological and pathological measures decline sharply.



The name of the article

Interactions between glutamatergic and monoaminergic systems within the basal ganglia-Implications for schizophrenia and Parkinson's disease.

Authors

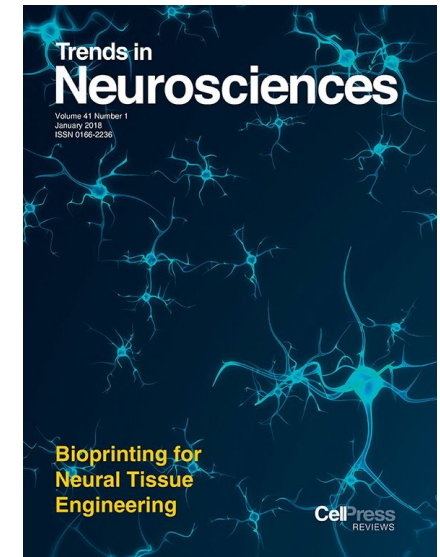
Carlsson M, Carlsson A.

Publication info

Year: 1990
Volume: 13(7)
Pages: 272-6

Description

Recent animal experiments suggest that dopamine plays a less crucial role than formerly supposed in the regulation of psychomotor functions. This is illustrated by the finding that even in the almost complete absence of brain dopamine, a pronounced behavioural activation is produced in mice following suppression of glutamatergic neurotransmission. This paper discusses the possibility that a deficient activity within the corticostriatal glutamatergic/aspartergic pathway may be an important pathophysiological component in schizophrenia, and that glutamatergic agonists may be beneficial in the treatment of this disease. In addition, it is suggested that glutamatergic antagonists may be valuable supplements in the treatment of Parkinson's disease.



The name of the article

Early-onset Alzheimer's disease caused by mutations at codon 717 of the beta-amyloid precursor protein gene.

Authors

Chartier-Harlin MC et.al..

Publication info

Year: 1991


Volume: 353(6347)


Pages: 844-6

Description

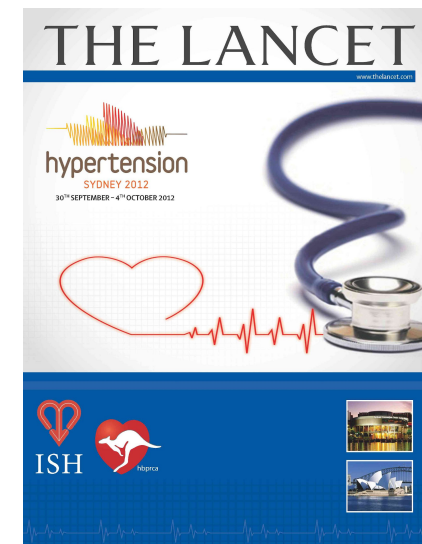
Alzheimer disease is the most common form of dementia. Mutations in the genes amyloid precursor protein (APP), presenilin 1(PS1) and presenilin 2(PS2) have been found in early-onset familial forms of Alzheimer disease Objective: To determine the cause of dementia in a family with early-onset illness. Design, Setting, and Participants: A family with a history of dementia was referred to the Indiana Alzheimer Disease Center, Indianapolis. All the research in this study was done in a university or university hospital. The proband and her 4 siblings took part in the study. The proband, who is still alive, showed symptoms of Alzheimer disease at 38 years of age. Genomic DNA was obtained from blood samples of 5 family members. Results: Sequence of exon 17 of the APPgene revealed a single nucleotide (guanine to cytosine) substitution in 1 allele, resulting in an amino acid change at codon 717 (valine to leucine). Each of the proband's siblings were tested for this mutation by direct sequencing. Conclusions: A novel mutation in the APPgene (V717L) has been found in a family with a history of dementia, beginning in the mid to late 30s. The age of onset in this family is earlier than most of the other families with Alzheimer disease who also have APPmutations.




The name of the article	Folate, vitamin B12, and serum total homocysteine levels in confirmed Alzheimer disease.	
Authors	Clarke R et.al..	
Publication info	Year: 1998 Volume: 55(11) Pages: 1449-55	
Description	<p>Recent studies suggest that vascular disease may contribute to the cause of Alzheimer disease (AD). Since elevated plasma total homocysteine (tHcy) level is a risk factor for vascular disease, it may also be relevant to AD. The objective is to examine the association of AD with blood levels of tHcy, and its biological determinants folate and vitamin B12. Design: Case-control study of 164 patients, aged 55 years or older, with a clinical diagnosis of dementia of Alzheimer type (DAT), including 76 patients with histologically confirmed AD and 108 control subjects. Results: Serum tHcy levels were significantly higher and serum folate and vitamin B12 levels were lower in patients with DAT and patients with histologically confirmed AD than in controls. The odds ratio of confirmed AD associated with a tHcy level in the top third (≥ 14 micromol/L) compared with the bottom third (≤ 11 micromol/L) of the control distribution was 4.5 (95% confidence interval, 2.2-9.2), after adjustment for age, sex, social class, cigarette smoking, and apolipoprotein E epsilon4. The corresponding odds ratio for the lower third compared with the upper third of serum folate distribution was 3.3 (95% confidence interval, 1.8-6.3) and of vitamin B12 distribution was 4.3 (95% confidence interval, 2.1-8.8). In a 3-year follow-up of patients with DAT, radiological evidence of disease progression was greater among those with higher tHcy levels at entry. Conclusions: Low blood levels of folate and vitamin B12, and elevated tHcy levels were associated with AD. The stability of tHcy levels over time and lack of relationship with duration of symptoms argue against these findings being a consequence of disease.</p>	

The name of the article	A DNA damage checkpoint response in telomere-initiated senescence	
Authors	d'Adda di Fagagna F et.al..	
Publication info	Year: 1998 Volume: 55(11) Pages: 1449-55	
Description	<p>Most human somatic cells can undergo only a limited number of population doublings in vitro. This exhaustion of proliferative potential, called senescence, can be triggered when telomeres--the ends of linear chromosomes--cannot fulfil their normal protective functions. Here we show that senescent human fibroblasts display molecular markers characteristic of cells bearing DNA double-strand breaks. These markers include nuclear foci of phosphorylated histone H2AX and their co-localization with DNA repair and DNA damage checkpoint factors such as 53BP1, MDC1 and NBS1. Finally, we show that inactivation of DNA damage checkpoint kinases in senescent cells can restore cell-cycle progression into S phase. Thus, we propose that telomere-initiated senescence reflects a DNA damage checkpoint response that is activated with a direct contribution from dysfunctional telomeres.</p>	

The name of the article	Selective loss of central cholinergic neurons in Alzheimer's disease.
Authors	Davies P, Maloney AJ.
Publication info	Year: 1976 Volume: 2(8000) Pages: 1403
Description	N/A



The name of the article	Basal lipid peroxidation in substantia nigra is increased in Parkinson's disease.	
Authors	Dexter DT et.al..	
Publication info	Year: 1989 Volume: 52(2) Pages: 381-9	
Description	<p>Polyunsaturated fatty acid (PUFA) levels (an index of the amount of substrate available for lipid peroxidation) were measured in several brain regions from patients who died with Parkinson's disease and age-matched control human postmortem brains. PUFA levels were reduced in parkinsonian substantia nigra compared to other brain regions and to control tissue. However, basal malondialdehyde (MDA; an intermediate in the lipid peroxidation process) levels were increased in parkinsonian nigra compared with other parkinsonian brain regions and control tissue. Expressing basal MDA levels in terms of PUFA content, the difference between parkinsonian and control substantia nigra was even more pronounced. Stimulating MDA production by incubating tissue with FeSO₄ plus ascorbic acid, FeSO₄ plus H₂O₂, or air alone produced lower MDA levels in the parkinsonian substantia nigra, probably reflecting the lower PUFA content. These results may indicate that an increased level of lipid peroxidation continues to occur in the parkinsonian nigra up to the time of death, perhaps because of continued exposure to excess free radicals derived from some endogenous or exogenous neurotoxic species.</p>	

The name of the article

**Research criteria for the diagnosis of Alzheimer's disease:
Revising the NINCDS - ADRDA criteria.**

Authors

Dubois B et.al..

Publication info


Year: 2007
Volume: 6(8)
Pages: 734-46

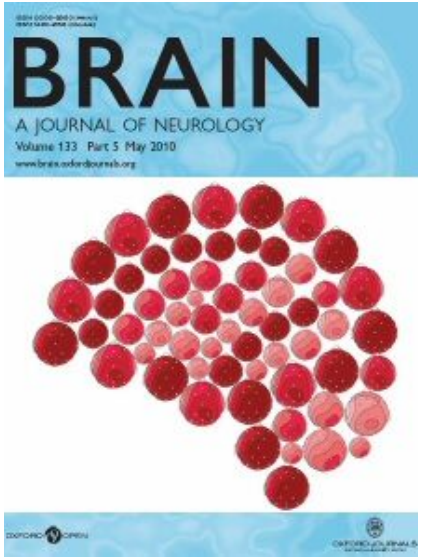
Description

The NINCDS-ADRDA and the DSM-IV-TR criteria for Alzheimer's disease (AD) are the prevailing diagnostic standards in research; however, they have now fallen behind the unprecedented growth of scientific knowledge. Distinctive and reliable biomarkers of AD are now available through structural MRI, molecular neuroimaging with PET, and cerebrospinal fluid analyses. This progress provides the impetus for our proposal of revised diagnostic criteria for AD. Our framework was developed to capture both the earliest stages, before full-blown dementia, as well as the full spectrum of the illness. These new criteria are centred on a clinical core of early and significant episodic memory impairment. They stipulate that there must also be at least one or more abnormal biomarkers among structural neuroimaging with MRI, molecular neuroimaging with PET, and cerebrospinal fluid analysis of amyloid beta or tau proteins. The timeliness of these criteria is highlighted by the many drugs in development that are directed at changing pathogenesis, particularly at the production and clearance of amyloid beta as well as at the hyperphosphorylation state of tau. Validation studies in existing and prospective cohorts are needed to advance these criteria and optimise their sensitivity, specificity, and accuracy.

THE LANCET
Neurology



<p>The name of the article</p>	<p>Body fat assessed from total body density and its estimation from skinfold thickness: Measurements on 481 men and women aged from 16 to 72 years.</p>	
<p>Authors</p>	<p>Durnin JV, Womersley J.</p>	
<p>Publication info</p>	<p>Year: 1974 Volume: 32(1) Pages: 77-97</p>	
<p>Description</p>	<p>Skinfold thicknesses at four sites – biceps, triceps, subscapular and supra-iliac – and total body density (by underwater weighing) were measured on 209 males and 272 females aged from 16 to 72 years. The fat content varied from 5 to 50% of body-weight in the men and from 10 to 61% in the women. When the results were plotted it was found necessary to use the logarithm of skinfold measurements in order to achieve a linear relationship with body density. Linear regression equations were calculated for the estimation of body density, and hence body fat, using single skinfolds and all possible sums of two or more skinfolds. Separate equations for the different age-groupings are given. A table is derived where percentage body fat can be read off corresponding to differing values for the total of the four standard skinfolds. This table is subdivided for sex and for age. The possible reasons for the altered position of the regression lines with sex and age, and the validation of the use of body density measurements, are discussed.</p>	

The name of the article	Ageing and Parkinson's disease: Substantia nigra regional selectivity.	
Authors	Fearnley JM, Lees AJ.	
Publication info	Year: 1991 Volume: 114(Pt. 5) Pages: 2283-301	
Description	<p>The micro-architecture of the substantia nigra was studied in control cases of varying age and patients with parkinsonism. The pars compacta was divided into a ventral and a dorsal tier, and each tier was further subdivided into 3 regions. In 36 control cases there was a linear fallout of pigmented neurons with advancing age in the pars compacta of the caudal substantia nigra at a rate of 4.7% per decade. Regionally, the lateral ventral tier was relatively spared (2.1% loss per decade) compared with the medial ventral tier (5.4%) and the dorsal tier (6.9%). In 20 Parkinson's disease (PD) cases of varying disease duration there was an exponential loss of pigmented neurons with a 45% loss in the first decade. Regionally, the pattern was opposite to ageing. Loss was greatest in the lateral ventral tier (average loss 91%) followed by the medial ventral tier (71%) and the dorsal tier (56%). The presymptomatic phase of PD from the onset of neuronal loss was estimated to be about 5 yrs. In 7 cases cell loss was confined to the lateral ventral tier (average loss 52%). It was calculated that at the onset of symptoms there was a 68% cell loss in the lateral ventral tier and a 48% loss in the caudal nigra as a whole. In 15 cases of striatonigral degeneration the distribution of cell loss was similar, but the loss in the dorsal tier was greater than PD by 21%. In 14 cases of Steele-Richardson-Olszewski syndrome (SRO) there was no predilection for the lateral ventral tier, but a tendency to involve the medial nigra and spare the lateral.</p>	

The name of the article

Global prevalence of dementia: A Delphi consensus study.

Authors

Ferri CP et.al..

Publication info

Year: 2005

Volume: 366(9503)

Pages: 2112-7

Description

100 years after the first description, Alzheimer's disease is one of the most disabling and burdensome health conditions worldwide. Methods: 12 international experts were provided with a systematic review of published studies on dementia and were asked to provide prevalence estimates for every WHO world region, for men and women combined, in 5-year age bands from 60 to 84 years, and for those aged 85 years and older. UN population estimates and projections were used to estimate numbers of people with dementia in 2001, 2020, and 2040. Findings: Evidence from well-planned, representative epidemiological surveys is scarce in many regions. We estimate that 24.3 million people have dementia today, with 4.6 million new cases of dementia every year (one new case every 7 seconds). The number of people affected will double every 20 years to 81.1 million by 2040. Most people with dementia live in developing countries (60% in 2001, rising to 71% by 2040). Rates of increase are not uniform; numbers in developed countries are forecast to increase by 100% between 2001 and 2040, but by more than 300% in India, China, and their south Asian and western Pacific neighbours.

THE LANCET

April 1, 2005

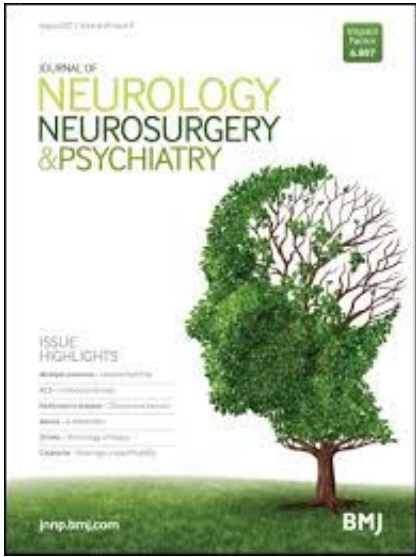
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<p>The name of the article</p>	<p>The relevance of the Lewy body to the pathogenesis of idiopathic Parkinson's disease.</p>	
<p>Authors</p>	<p>Gibb WR, Lees AJ.</p>	
<p>Publication info</p>	<p>Year: 1988 Volume: 51(6) Pages: 745-52</p>	
<p>Description</p>	<p>The Lewy body is a distinctive neuronal inclusion that is always found in the substantia nigra and other specific brain regions in Parkinson's disease. It is mainly composed of structurally altered neurofilament, and occurs wherever there is excessive loss of neurons. It occurs in some elderly individuals and rarely in other degenerative diseases of the central nervous system. In 273 brains of patients dying from disorders other than Parkinson's disease, the age-specific prevalence of Lewy bodies increased from 3.8% to 12.8% between the sixth and ninth decades. Associated pathological findings suggest that these cases of incidental Lewy body disease are presymptomatic cases of Parkinson's disease, and confirm the importance of age (time) in the evolution of the disease. In view of the common and widespread occurrence of this disorder we propose that endogenous mechanisms operating in early life may be more important than environmental agents in the pathogenesis of Lewy bodies and Parkinson's disease.</p>	

The name of the article

Segregation of a missense mutation in the amyloid precursor protein gene with familial Alzheimer's Disease.

Authors

Goate A et.al..

Publication info

Year: 1991
Volume: 349(6311)
Pages: 704-6

Description

A locus segregating with familial Alzheimer's disease (AD) has been mapped to chromosome 21, close to the amyloid precursor protein (APP) gene. Recombinants between the APP gene and the AD locus have been reported which seemed to exclude it as the site of the mutation causing familial AD. But recent genetic analysis of a large number of AD families has demonstrated that the disease is heterogeneous. Families with late-onset AD do not show linkage to chromosome 21 markers. Some families with early-onset AD show linkage to chromosome 21 markers, but some do not. This has led to the suggestion that there is non-allelic genetic heterogeneity even within early onset familial AD. To avoid the problems that heterogeneity poses for genetic analysis, we have examined the cosegregation of AD and markers along the long arm of chromosome 21 in a single family with AD confirmed by autopsy. Here we demonstrate that in this kindred, which shows linkage to chromosome 21 markers, there is a point mutation in the APP gene. This mutation causes an amino-acid substitution close to the carboxy terminus of the beta-amyloid peptide. Screening other cases of familial AD revealed a second unrelated family in which this variant occurs. This suggests that some cases of AD could be caused by mutations in the APP gene.



The name of the article

Multiple isoforms of human microtubule-associated protein tau: Sequences and localization in neurofibrillary tangles of Alzheimer's disease.

Authors

Goedert M et.al..

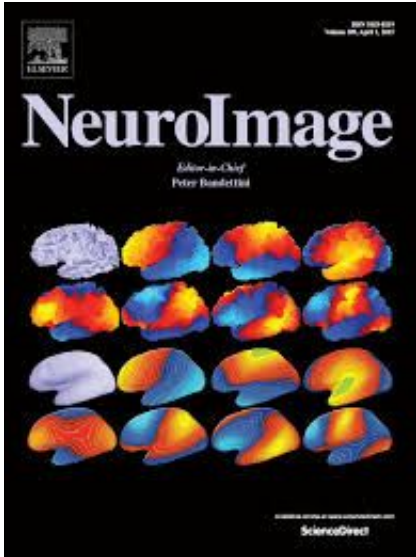
Publication info

Year: 1989
Volume: 3(4)
Pages: 519-26

Description

We have determined the sequences of isoforms of human tau protein, which differ from previously reported forms by insertions of 29 or 58 amino acids in the amino-terminal region. Complementary DNA cloning shows that the insertions occur in combination with both three and four tandem repeats. RNAase protection assays indicate that transcripts encoding isoforms with the insertions are expressed in an adult-specific manner. Transcripts encoding four tandem repeats are also expressed in an adult-specific manner, whereas mRNAs encoding three tandem repeats are expressed throughout life, including in fetal brain. The levels of transcripts encoding the 29 or 58 amino acid inserts were not significantly changed in cerebral cortex from patients with Alzheimer's disease. Antisera raised against synthetic peptides corresponding to these different human tau isoforms demonstrate that multiple tau protein isoforms are incorporated into the neurofibrillary tangles of Alzheimer's disease.



The name of the article	A voxel-based morphometric study of ageing in 465 normal adult human brains.	
Authors	Good CD et.al..	
Publication info	<p>Year: 2001 Volume: 14(1 Pt 1) Pages: 21-36</p>	
Description	<p>Voxel-based-morphometry (VBM) is a whole-brain, unbiased technique for characterizing regional cerebral volume and tissue concentration differences in structural magnetic resonance images. We describe an optimized method of VBM to examine the effects of age on grey and white matter and CSF in 465 normal adults. Global grey matter volume decreased linearly with age, with a significantly steeper decline in males. Local areas of accelerated loss were observed bilaterally in the insula, superior parietal gyri, central sulci, and cingulate sulci. Areas exhibiting little or no age effect (relative preservation) were noted in the amygdala, hippocampi, and entorhinal cortex. Global white matter did not decline with age, but local areas of relative accelerated loss and preservation were seen. There was no interaction of age with sex for regionally specific effects. These results corroborate previous reports and indicate that VBM is a useful technique for studying structural brain correlates of ageing through life in humans.</p>	

The name of the article

Effect of age and high blood pressure on baroreflex sensitivity in man.

Authors

Gribbin B, Pickering TG, Sleight P, Peto R.

Publication info

Year: 1971


Volume: 29(4)


Pages: 424-31


Description

The purpose of this study was to relate baroreflex sensitivity to age and arterial pressure in 61 male and 20 female untreated subjects, aged 19-66 years, whose mean arterial pressures ranged from 70 to 150 mm Hg. In this selected group of subjects there was no correlation between age and arterial pressure. The index of sensitivity used was the increase in pulse interval which occurs reflexly in response to a rise in systolic pressure induced by the intravenous injection of phenylephrine and is measured as the increase in pulse interval in milliseconds per mm Hg rise in systolic blood pressure. It ranged from 1.9 to 48.9 msec/mm Hg. Increasing age and arterial pressure act independently to reduce baroreflex sensitivity. Eight subjects who had normal blood pressure at the time of testing but whose pressure had been elevated in the past, had reflex sensitivities significantly less than expected in persons of the same age and mean arterial pressure. The heart rate in these subjects was not significantly different from that in the controls; the heart rate of the 12 hypertensive subjects aged under 40 years was significantly faster than that of age-matched normotensive subjects but not that of older hypertensive subjects.



The name of the article	Cerebral blood flow in dementia.	
Authors	Hachinski VC et.al..	
Publication info	Year: 1975 Volume: 32(9) Pages: 632-7	
Description	<p>Twenty-four patients of comparable age, blood pressure, and degree of dementia were classified by an "Ischemic Score" based on clinical features into "multi-infarct" and "primary degenerative" dementia. Regional cerebral blood flow (CBF) was measured by the intracarotid xenon 133 method. Both groups showed a decreased proportion of rapidly clearing brain tissue (largely gray matter). Cerebral blood flow per 100 gm brain per minute was normal in the primary degenerative group but low in the multi-infarct group. This suggests the blood flow is adequate for metabolic needs of the brain in patients with primary degenerative dementia but inadequate for those with multi-infarct dementia. There was no correlation between degree of dementia and CBF in the primary degenerative group but an inverse relationship existed in the multi-infarct group. Reactivity of blood vessels to reduction of arterial carbon dioxide pressure was normal in both groups.</p>	

The name of the article	The moulding of senescence by natural selection.	
Authors	Hamilton WD.	
Publication info	Year: 1966 Volume: 12(1) Pages: 12-45	
Description	<p>The consequences to fitness of several types of small age-specific effects on mortality are formulated mathematically. An effect of given form always has a larger consequence, or at least one as large, when it occurs earlier. By reference to a model in which mortality is constant it is shown that this implication cannot be avoided by any conceivable organism. A basis for the theory that senescence is an inevitable outcome of evolution is thus established. The simple theory cannot explain specially high infant mortalities. Fisher's "reproductive value", the form of which gave rise to an erroneous opinion on this point, is shown to be not directly relevant to the situation. Infant mortality may evolve when the early death of one infant makes more likely the creation or survival of a close relative. Similarly, post-reproductive life-spans may evolve when the old animal still benefits its younger relatives. The model shows that higher fertility will be a primary factor leading to the evolution of higher rates of senescence unless the resulting extra mortality is confined to the immature period. Some more general analytical notes on the consequences of modifications to the reproductive schedule are given. Applications to species with populations in continual fluctuation are briefly discussed. Such species apart, it is argued that general stationarity of population can be assumed, in which case the measurement of consequences to fitness in terms of consequences to numerical expectation of offspring is justified. All the age-functions discussed are illustrated by graphs derived from the life-table of the Taiwanese about 1906, and the method of computation is shown.</p>	

The name of the article	Telomere reduction in human colorectal carcinoma and with ageing.	
Authors	Hastie ND et.al..	
Publication info	<p>Year: 1990</p> <p>Volume: 346(6287)</p> <p>Pages: 866-8</p>	
Description	<p>We have hypothesized that end-to-end chromosome fusions observed in some tumours could play a part in genetic instability associated with tumorigenesis and that fusion may result from the loss of the long stretches of G-rich repeats found at the ends of all linear chromosomes. We therefore asked whether there is telomere loss or reduction in common tumours. Here we show that in most of the colorectal carcinomas that we analysed, there is a reduction in the length of telomere repeat arrays relative to the normal colonic mucosa from the same patient. We speculate on the consequences of this loss for tumorigenesis. We also show that the telomere arrays are much smaller in colonic mucosa and blood than in fetal tissue and sperm, and that there is a reduction in average telomere length with age in blood and colon mucosa. We propose that the telomerase is inactive in somatic tissues, and that telomere length is an indicator of the number of cell divisions that it has taken to form a particular tissue and possibly to generate tumours.</p>	

The name of the article

Accuracy of clinical diagnosis of idiopathic Parkinson's disease: A clinico-pathological study of 100 cases.

Authors

Hughes AJ, Daniel SE, Kilford L, Lees AJ.

Publication info

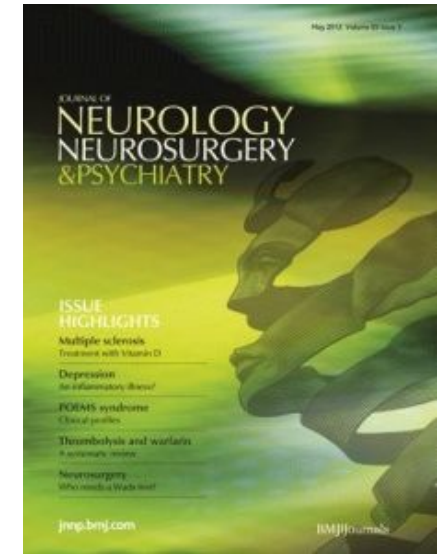
Year: 1992

Volume: 55(3)

Pages: 181-4

Description

Few detailed clinico-pathological correlations of Parkinson's disease have been published. The pathological findings in 100 patients diagnosed prospectively by a group of consultant neurologists as having idiopathic Parkinson's disease are reported. Seventy six had nigral Lewy bodies, and in all of these Lewy bodies were also found in the cerebral cortex. In 24 cases without Lewy bodies, diagnoses included progressive supranuclear palsy, multiple system atrophy, Alzheimer's disease, Alzheimer-type pathology, and basal ganglia vascular disease. The retrospective application of recommended diagnostic criteria improved the diagnostic accuracy to 82%. These observations call into question current concepts of Parkinson's disease as a single distinct morbid entity.



The name of the article

Identification of a novel aspartic protease (Asp 2) as beta-secretase.

Authors

Hussain I et.al..

Publication info

Year: 1999

Volume: 14(6)

Pages: 419-27

Description

The Alzheimer's disease beta-amyloid peptide (A β) is produced by excision from the type 1 integral membrane glycoprotein amyloid precursor protein (APP) by the sequential actions of beta- and then gamma-secretases. Here we report that Asp 2, a novel transmembrane aspartic protease, has the key activities expected of beta-secretase. Transient expression of Asp 2 in cells expressing APP causes an increase in the secretion of the N-terminal fragment of APP and an increase in the cell-associated C-terminal beta-secretase APP fragment. Mutation of either of the putative catalytic aspartyl residues in Asp 2 abrogates the production of the fragments characteristic of cleavage at the beta-secretase site. The enzyme is present in normal and Alzheimer's disease (AD) brain and is also found in cell lines known to produce A β . Asp 2 localizes to the Golgi/endoplasmic reticulum in transfected cells and shows clear colocalization with APP in cells stably expressing the 751-amino-acid isoform of APP.



The name of the article

Oxidative stress in Parkinson's disease.

Authors

Jenner P.

Publication info

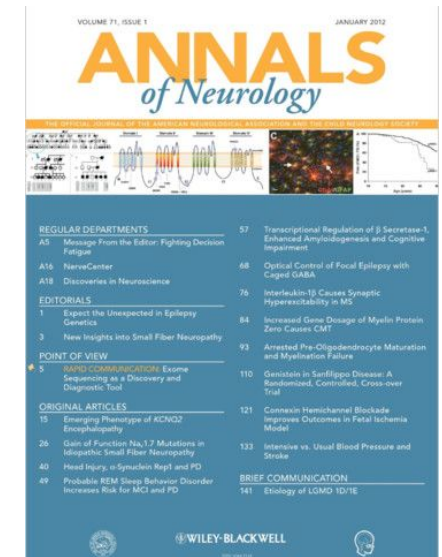
Year: 2003

Volume: 53 Suppl 3

Pages: S26-8

Description

Oxidative stress contributes to the cascade leading to dopamine cell degeneration in Parkinson's disease (PD). However, oxidative stress is intimately linked to other components of the degenerative process, such as mitochondrial dysfunction, excitotoxicity, nitric oxide toxicity and inflammation. It is therefore difficult to determine whether oxidative stress leads to, or is a consequence of, these events. Oxidative damage to lipids, proteins, and DNA occurs in PD, and toxic products of oxidative damage, such as 4-hydroxynonenal (HNE), can react with proteins to impair cell viability. There is convincing evidence for the involvement of nitric oxide that reacts with superoxide to produce peroxynitrite and ultimately hydroxyl radical production. Recently, altered ubiquitination and degradation of proteins have been implicated as key to dopaminergic cell death in PD. Oxidative stress can impair these processes directly, and products of oxidative damage, such as HNE, can damage the 26S proteasome. Furthermore, impairment of proteasomal function leads to free radical generation and oxidative stress. Oxidative stress occurs in idiopathic PD and products of oxidative damage interfere with cellular function, but these form only part of a cascade, and it is not possible to separate them from other events involved in dopaminergic cell death.



The name of the article

Why do we age?

Authors

Kirkwood TB, Austad SN.

Publication info

Year: 2000


Volume: 408(6809)

Pages: 233-8

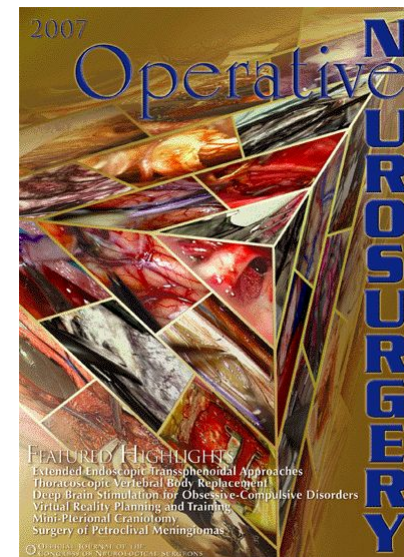
Description

The evolutionary theory of ageing explains why ageing occurs, giving valuable insight into the mechanisms underlying the complex cellular and molecular changes that contribute to senescence. Such understanding also helps to clarify how the genome shapes the ageing process, thereby aiding the study of the genetic factors that influence longevity and age-associated diseases.



The name of the article	Age-specific relevance of usual blood pressure to vascular mortality: A meta-analysis of individual data for one million adults in 61 prospective studies.	
Authors	Lewington S et.al..	
Publication info	Year: 2002 Volume: 360(9349) Pages: 1903-13	
Description	<p>The age-specific relevance of blood pressure to cause-specific mortality is best assessed by collaborative meta-analysis of individual participant data from the separate prospective studies. METHODS: Information was obtained on each of one million adults with no previous vascular disease recorded at baseline in 61 prospective observational studies of blood pressure and mortality. During 12.7 million person-years at risk, there were about 56000 vascular deaths (12000 stroke, 34000 ischaemic heart disease [IHD], 10000 other vascular) and 66000 other deaths at ages 40-89 years. FINDINGS: Within each decade of age at death, the proportional difference in the risk of vascular death associated with a given absolute difference in usual blood pressure is about the same down to at least 115 mm Hg usual systolic blood pressure (SBP) and 75 mm Hg usual diastolic blood pressure (DBP), below which there is little evidence. At ages 40-69 years, each difference of 20 mm Hg usual SBP (or, approximately equivalently, 10 mm Hg usual DBP) is associated with more than a twofold difference in the stroke death rate, and with twofold differences in the death rates from IHD and from other vascular causes. The age-specific associations are similar for men and women, and for cerebral haemorrhage and cerebral ischaemia.</p>	

The name of the article	Electrical stimulation of the subthalamic nucleus in advanced Parkinson's disease.
Authors	Limousin P et.al.
Publication info	Year: 1998 Volume: 339(16) Pages: 1105-11
Description	<p>In many patients with idiopathic Parkinson's disease, treatment with levodopa is complicated by fluctuations between an "off" period, when the medication is not working and the motor symptoms of parkinsonism are present, and an "on" period, when the medication is causing improved mobility, often accompanied by debilitating dyskinesias. We therefore sought to determine the efficacy and safety of electrical stimulation of the subthalamic nucleus in patients with Parkinson's disease. Methods: We studied 24 patients with idiopathic Parkinson's disease in whom electrodes were implanted bilaterally in the subthalamic nucleus under stereotactic guidance with imaging and electrophysiologic testing of the location. Twenty were followed for at least 12 months. Results: After one year of electrical stimulation of the subthalamic nucleus, the patients' scores for activities of daily living and motor examination scores (Unified Parkinson's Disease Rating Scale parts II and III, respectively) off medication improved by 60 percent ($P<0.001$). The subscores improved for limb akinesia, rigidity, tremor, and gait. In the testing done on medication, the scores on part III improved by 10 percent ($P<0.005$). The mean dose of dopaminergic drugs was reduced by half. The cognitive-performance scores remained unchanged, but one patient had paralysis and aphasia after an intracerebral hematoma during the implantation procedure.</p>



The name of the article

Instability and decay of the primary structure of DNA.

Authors

Lindahl T.

Publication info

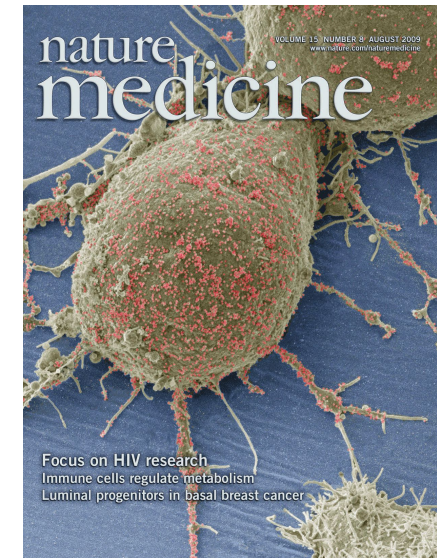
Year: 1993

Volume: 362(6422)

Pages: 709-15

Description

Although DNA is the carrier of genetic information, it has limited chemical stability. Hydrolysis, oxidation and nonenzymatic methylation of DNA occur at significant rates in vivo, and are counteracted by specific DNA repair processes. The spontaneous decay of DNA is likely to be a major factor in mutagenesis, carcinogenesis and ageing, and also sets limits for the recovery of DNA fragments from fossils.



The name of the article

Consensus guidelines for the clinical and pathologic diagnosis of dementia with Lewy bodies (DLB): Report of the consortium on DLB international workshop.

Authors

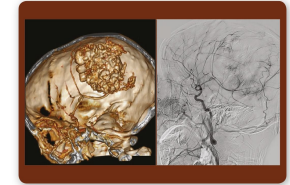
McKeith IG et.al..

Publication info

Year: 1996
Volume: 47(5)
Pages: 1113-24.

Description

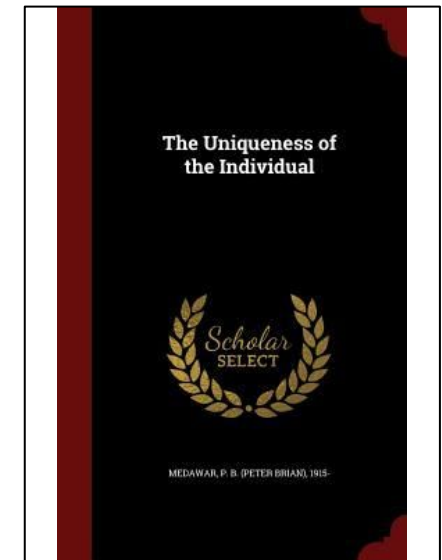
Recent neuropathologic autopsy studies found that 15 to 25% of elderly demented patients have Lewy bodies (LB) in their brainstem and cortex, and in hospital series this may constitute the most common pathologic subgroup after pure Alzheimer's disease (AD). We identified progressive disabling mental impairment progressing to dementia as the central feature of DLB. Fluctuation in cognitive function, persistent well-formed visual hallucinations, and spontaneous motor features of parkinsonism are core features with diagnostic significance in discriminating DLB from AD and other dementias. Brainstem or cortical LB are the only features considered essential for a pathologic diagnosis of DLB, although Lewy-related neurites, We identified optimal staining methods for each of these and devised a protocol for the evaluation of cortical LB frequency based on a brain sampling procedure consistent with CERAD. Alzheimer pathology is also frequently present in DLB, usually as diffuse or neuritic plaques, neocortical neurofibrillary tangles being much less common. The precise nosological relationship between DLB and AD remains uncertain, as does that between DLB and patients with Parkinson's disease who subsequently develop neuropsychiatric features. Finally, we recommend procedures for the selective sampling and storage of frozen tissue for a variety of neurochemical assays, which together with developments in molecular genetics, should assist future refinements of diagnosis and classification.



Cognitive impairment, behavioral impairment, depression, and wish to die in an ALS cohort, p.1920 | History of multiple sclerosis in 2 successive pregnancies: A French and Italian cohort, p.1960 | Role of sleep-disordered breathing and sleep-wake disturbances for stroke and stroke recovery, p.1407

AAN • 69th Annual Meeting Boston, Massachusetts • April 22-26, 2017 | The most widely read and highly cited peer-reviewed neurology journal THE OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF NEUROLOGY

The name of the article	An unsolved problem of biology.
Authors	Medawar PB.
Publication info	<p>Year: 1952</p> <p>Pages: Reprint page numbering:44-70</p>
Description	N/A



The name of the article

A pathogenic mutation for probable Alzheimer's disease in the APP gene at the N-terminus of beta-amyloid.

Authors

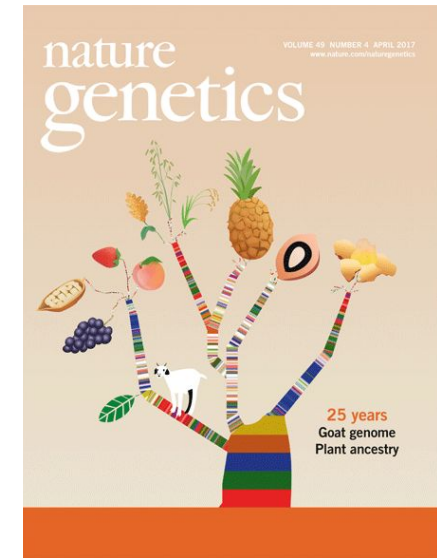
Mullan M et.al..

Publication info

Year: 1992
Volume: 1(5)
Pages: 345-7

Description

Mutations at codon 717 in exon 17 of the beta-amyloid precursor protein (APP) gene have previously been shown to segregate with early onset Alzheimer's disease in some families. We have identified a double mutation at codons 670 and 671 (APP 770 transcript) in exon 16 which co-segregates with the disease in two large (probably related) early-onset Alzheimer's disease families from Sweden. Two base pair transversions (G to T, A to C) from the normal sequence predict Lys to Asn and Met to Leu amino acid substitutions at codons 670 and 671 of the APP transcript. This mutation occurs at the amino terminal of beta-amyloid and may be pathogenic because it occurs at or close to the endosomal/lysosomal cleavage site of the molecule. Thus, pathogenic mutations in APP frame the beta-amyloid sequence.



The name of the article

Neuropathology of human Alzheimer disease after immunization with amyloid-beta peptide: A case report.

Authors

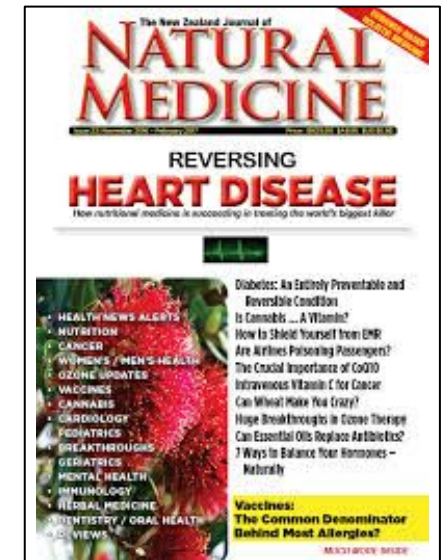
Nicoll JA et al..

Publication info

Year: 2003
Volume: 9(4)
Pages: 448-52

Description

Amyloid-beta peptide (Abeta) has a key role in the pathogenesis of Alzheimer disease (AD). Immunization with Abeta in a transgenic mouse model of AD reduces both age-related accumulation of Abeta in the brain and associated cognitive impairment. Here we present the first analysis of human neuropathology after immunization with Abeta (AN-1792). Comparison with unimmunized cases of AD (n = 7) revealed the following unusual features in the immunized case, despite diagnostic neuropathological features of AD: (i) there were extensive areas of neocortex with very few Abeta plaques; (ii) those areas of cortex that were devoid of Abeta plaques contained densities of tangles, neuropil threads and cerebral amyloid angiopathy (CAA) similar to unimmunized AD, but lacked plaque-associated dystrophic neurites and astrocyte clusters; (iii) in some regions devoid of plaques, Abeta-immunoreactivity was associated with microglia; (iv) T-lymphocyte meningoencephalitis was present; and (v) cerebral white matter showed infiltration by macrophages. Findings (i)-(iii) strongly resemble the changes seen after Abeta immunotherapy in mouse models of AD and suggest that the immune response generated against the peptide elicited clearance of Abeta plaques in this patient. The T-lymphocyte meningoencephalitis is likely to correspond to the side effect seen in some other patients who received AN-1792 (refs. 7-9).



The name of the article

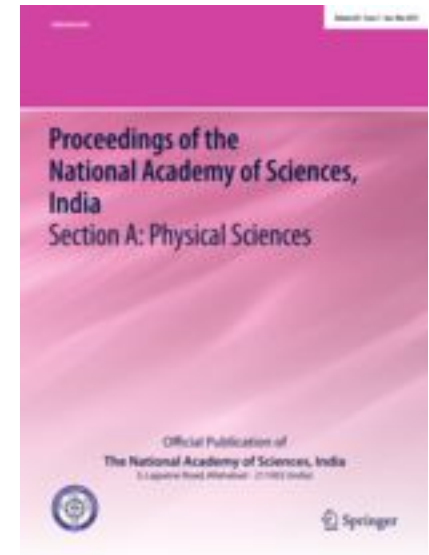
The maintenance of the accuracy of protein synthesis and its relevance to ageing.

Authors

Orgel LE.

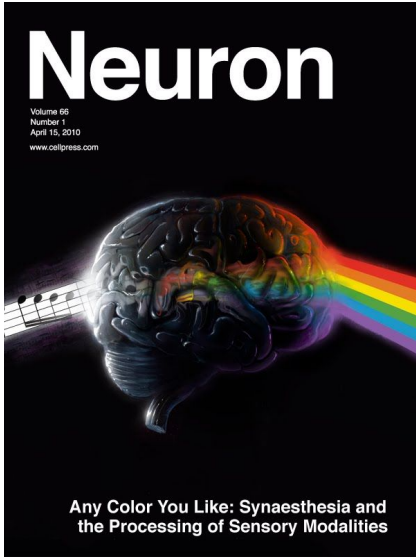
Publication info


Year: 1963
Volume: 49
Pages: 517-21



Description

The ways in which the accumulation of mutations might contribute to the process of ageing in higher organisms or in individual clones of cells has been discussed at length. No corresponding treatment of the consequences of transcription errors in the translation of the DNA message into RNA and protein sequences seems to be available. Here I show that a consideration of the rate of accumulation of such errors leads to a paradox, the resolution of which may be relevant to the problem of ageing, and that there are a number of simple experiments which should decide whether this is the case. The basic idea is a simple one, namely, that the ability of a cell to produce its complement of functional proteins depends not only on the correct genetic specification of the various polypeptide sequences, but also on the competence of the protein-synthetic apparatus. A cell inherits, in addition to its genetic-DNA, the enzymes necessary for the transcription of that material into polypeptide sequences; the inheritance of inadequate protein-synthesizing enzymes can be as disastrous as the inheritance of a mutated gene. Similarly, a cell may deteriorate through a progressive decrease in the adequacy of its transcription mechanism, just as it may through the accumulation of somatic mutations..

<p>The name of the article</p>	<p>Cloning of the gene containing mutations that cause PARK8-linked Parkinson's disease.</p>	
<p>Authors</p>	<p>Paisan-Ruiz C et.al..</p>	
<p>Publication info</p>	<p>Year: 2004 Volume: 44(4) Pages: 595-600</p>	
<p>Description</p>	<p>Parkinson's disease (PD; OMIM #168600) is the second most common neurodegenerative disorder in the Western world and presents as a progressive movement disorder. The hallmark pathological features of PD are loss of dopaminergic neurons from the substantia nigra and neuronal intracellular Lewy body inclusions. Parkinsonism is typically sporadic in nature; however, several rare familial forms are linked to genetic loci, and the identification of causal mutations has provided insight into the disease process. PARK8, identified in 2002 by Funayama and colleagues, appears to be a common cause of familial PD. We describe here the cloning of a novel gene that contains missense mutations segregating with PARK8-linked PD in five families from England and Spain. Because of the tremor observed in PD and because a number of the families are of Basque descent, we have named this protein dardarin, derived from the Basque word dardara, meaning tremor.</p>	

<p>The name of the article</p>	<p>Transition metals, ferritin, glutathione, and ascorbic acid in parkinsonian brains.</p>	
<p>Authors</p>	<p>Riederer P et.al..</p>	
<p>Publication info</p>	<p>Year: 1989 Volume: 52(2) Pages: 515-20</p>	
<p>Description</p>	<p>The regional distributions of iron, copper, zinc, magnesium, and calcium in parkinsonian brains were compared with those of matched controls. In mild Parkinson's disease (PD), there were no significant differences in the content of total iron between the two groups, whereas there was a significant increase in total iron and iron (III) in substantia nigra of severely affected patients. Although marked regional distributions of iron, magnesium, and calcium were present, there were no changes in magnesium, calcium, and copper in various brain areas of PD. The most notable finding was a shift in the iron (II)/iron (III) ratio in favor of iron (III) in substantia nigra and a significant increase in the iron (III)-binding, protein, ferritin. A significantly lower glutathione content was present in pooled samples of putamen, globus pallidus, substantia nigra, nucleus basalis of Meynert, amygdaloid nucleus, and frontal cortex of PD brains with severe damage to substantia nigra, whereas no significant changes were observed in clinicopathologically mild forms of PD. In all these regions, except the amygdaloid nucleus, ascorbic acid was not decreased. Reduced glutathione and the shift of the iron (II)/iron (III) ratio in favor of iron (III) suggest that these changes might contribute to pathophysiological processes underlying PD.</p>	

The name of the article	Macrophage phagocytosis of aging neutrophils in inflammation. Programmed cell death in the neutrophil leads to its recognition by macrophages.
Authors	Savill JS et.al..
Publication info	Year: 1989 Volume: 83(3) Pages: 865-75
Description	<p>Mechanisms governing the normal resolution processes of inflammation are poorly understood, yet their elucidation may lead to a greater understanding of the pathogenesis of chronic inflammation. The removal of neutrophils and their potentially histotoxic contents is one prerequisite of resolution. Engulfment by macrophages is an important disposal route, and changes in the senescent neutrophil that are associated with their recognition by macrophages are the subject of this investigation. Over 24 h in culture an increasing proportion of human neutrophils from peripheral blood or acutely inflamed joints underwent morphological changes characteristic of programmed cell death or apoptosis. Time-related chromatin cleavage in an internucleosomal pattern indicative of the endogenous endonuclease activation associated with programmed cell death was also demonstrated. Macrophages from acutely inflamed joints preferentially ingested apoptotic neutrophils and histological evidence was presented for occurrence of the process in situ. Programmed cell death is a phenomenon of widespread biological importance and has not previously been described in a cell of the myeloid line. Because it leads to recognition of intact senescent neutrophils that have not necessarily disgorged their granule contents, these processes may represent a mechanism for the removal of neutrophils during inflammation that also serves to limit the degree of tissue injury.</p>



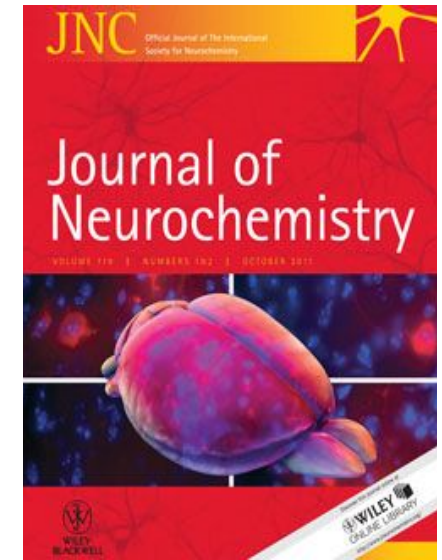
The name of the article	Mitochondrial complex I deficiency in Parkinson's disease.
Authors	Schapira AH et.al.
Publication info	Year: 1990 Volume: 54(3) Pages: 823-7
Description	<p>The structure and function of mitochondrial respiratory-chain enzyme proteins were studied postmortem in the substantia nigra of nine patients with Parkinson's disease and nine matched controls. Total protein and mitochondrial mass were similar in the two groups. NADH-ubiquinone reductase (Complex I) and NADH cytochrome c reductase activities were significantly reduced, whereas succinate cytochrome c reductase activity was normal. These results indicated a specific defect of Complex I activity in the substantia nigra of patients with Parkinson's disease. This biochemical defect is the same as that produced in animal models of parkinsonism by 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) and adds further support to the proposition that Parkinson's disease may be due to an environmental toxin with action(s) similar to those of MPTP.</p>

Mitochondrial complex I deficiency in Parkinson's disease.

Schapira AH et.al.

Year: 1990
Volume: 54(3)
Pages: 823-7

The structure and function of mitochondrial respiratory-chain enzyme proteins were studied postmortem in the substantia nigra of nine patients with Parkinson's disease and nine matched controls. Total protein and mitochondrial mass were similar in the two groups. NADH-ubiquinone reductase (Complex I) and NADH cytochrome c reductase activities were significantly reduced, whereas succinate cytochrome c reductase activity was normal. These results indicated a specific defect of Complex I activity in the substantia nigra of patients with Parkinson's disease. This biochemical defect is the same as that produced in animal models of parkinsonism by 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) and adds further support to the proposition that Parkinson's disease may be due to an environmental toxin with action(s) similar to those of MPTP.



The name of the article

Increased amyloid beta-peptide deposition in cerebral cortex as a consequence of apolipoprotein E genotype in late-onset Alzheimer disease.

Authors

Schmechel DE et.al.

Publication info

Year: 1993

Volume: 90(20)

Pages: 9649-53

Description

Amyloid beta-peptide (A beta) deposition in senile plaques and cerebral vessels is a neuropathological feature of Alzheimer disease (AD). We examined the possibility that commonly observed variability in A beta deposition in late-onset AD might be related to apolipoprotein E genotype (APOE gene; the two most common alleles are 3 and 4), since APOE4 is a susceptibility gene for late-onset AD and apolipoprotein E interacts strongly with A beta in vitro. In an autopsy series of brains of late-onset AD patients, we found a strong association of APOE4 allele with increased vascular and plaque A beta deposits. Late-onset AD patients with one or two APOE4 alleles have a distinct neuropathological phenotype compared with patients homozygous for APOE3.



The name of the article

Pravastatin in elderly individuals at risk of vascular disease (PROSPER): A randomised controlled trial.

THE LANCET

Surgery 2012

Authors

Shepherd J et.al..

Publication info

Year: 2002

Volume: 360(9346)

Pages: 1623-30



Description

Although statins reduce coronary and cerebrovascular morbidity and mortality in middle-aged individuals, their efficacy and safety in elderly people is not fully established. Our aim was to test the benefits of pravastatin treatment in an elderly cohort of men and women with, or at high risk of developing, cardiovascular disease and stroke. **METHODS:** We did a randomised controlled trial in which we assigned 5804 men (n=2804) and women (n=3000) aged 70-82 years with a history of, or risk factors for, vascular disease to pravastatin (40 mg per day; n=2891) or placebo (n=2913). Baseline cholesterol concentrations ranged from 4.0 mmol/L to 9.0 mmol/L. Follow-up was 3.2 years on average and our primary endpoint was a composite of coronary death, non-fatal myocardial infarction, and fatal or non-fatal stroke. Analysis was by intention-to-treat. **FINDINGS:** Pravastatin lowered LDL cholesterol concentrations by 34% and reduced the incidence of the primary endpoint to 408 events compared with 473 on placebo (hazard ratio 0.85, 95% CI 0.74-0.97, p=0.014). Coronary heart disease death and non-fatal myocardial infarction risk was also reduced (0.81, 0.69-0.94, p=0.006). Stroke risk was unaffected (1.03, 0.81-1.31, p=0.8), but the hazard ratio for transient ischaemic attack was 0.75 (0.55-1.00, p=0.051). New cancer diagnoses were more frequent on pravastatin than on placebo (1.25, 1.04-1.51, p=0.020). **INTERPRETATION:** Pravastatin given for 3 years reduced the risk of coronary disease in elderly individuals.

The name of the article

alpha-Synuclein in filamentous inclusions of Lewy bodies from Parkinson's disease and dementia with lewy bodies.

Authors

Spillantini MG et.al.

Publication info

Year: 1998

Volume: 95(11)

Pages: 6469-73

Description

Lewy bodies and Lewy neurites are the defining neuropathological characteristics of Parkinson's disease and dementia with Lewy bodies. They are made of abnormal filamentous assemblies of unknown composition. We show here that Lewy bodies and Lewy neurites from Parkinson's disease and dementia with Lewy bodies are stained strongly by antibodies directed against amino-terminal and carboxyl-terminal sequences of alpha-synuclein, showing the presence of full-length or close to full-length alpha-synuclein. The number of alpha-synuclein-stained structures exceeded that immunoreactive for ubiquitin, which is currently the most sensitive marker of Lewy bodies and Lewy neurites. We have isolated Lewy body filaments by a method used for the extraction of paired helical filaments from Alzheimer's disease brain. The morphologies of the 5- to 10-nm filaments and their staining characteristics suggest that extended alpha-synuclein molecules run parallel to the filament axis and that the filaments are polar structures. These findings indicate that alpha-synuclein forms the major filamentous component of Lewy bodies and Lewy neurites.



<p>The name of the article</p>	<p>Alpha-synuclein in Lewy bodies.</p>	
<p>Authors</p>	<p>Spillantini MG et.al..</p>	
<p>Publication info</p>	<p>Year: 1997 Volume: 388(6645) Pages: 839-40</p>	
<p>Description</p>	<p>Lewy bodies and Lewy neurites are the defining neuropathological characteristics of Parkinson's disease and dementia with Lewy bodies. They are made of abnormal filamentous assemblies of unknown composition. We show here that Lewy bodies and Lewy neurites from Parkinson's disease and dementia with Lewy bodies are stained strongly by antibodies directed against amino-terminal and carboxyl-terminal sequences of alpha-synuclein, showing the presence of full-length or close to full-length alpha-synuclein. The number of alpha-synuclein-stained structures exceeded that immunoreactive for ubiquitin, which is currently the most sensitive marker of Lewy bodies and Lewy neurites. Staining for alpha-synuclein thus will replace staining for ubiquitin as the preferred method for detecting Lewy bodies and Lewy neurites. We have isolated Lewy body filaments by a method used for the extraction of paired helical filaments from Alzheimer's disease brain. By immunoelectron microscopy, extracted filaments were labeled strongly by anti-alpha-synuclein antibodies. The morphologies of the 5- to 10-nm filaments and their staining characteristics suggest that extended alpha-synuclein molecules run parallel to the filament axis and that the filaments are polar structures.</p>	

The name of the article

Binding of human apolipoprotein E to synthetic amyloid beta peptide: Isoform-specific effects and implications for late-onset Alzheimer disease.

Authors

Strittmatter WJ et.al.

Publication info

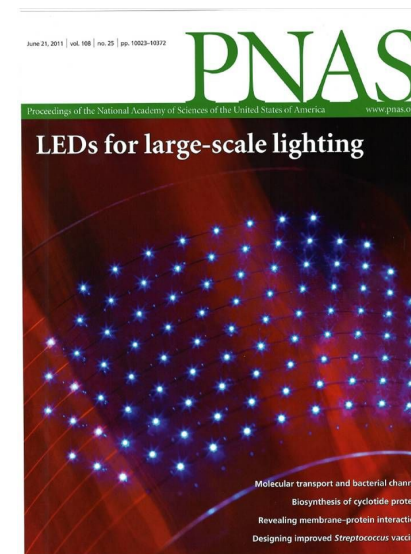
Year: 1993

Volume: 90(17)

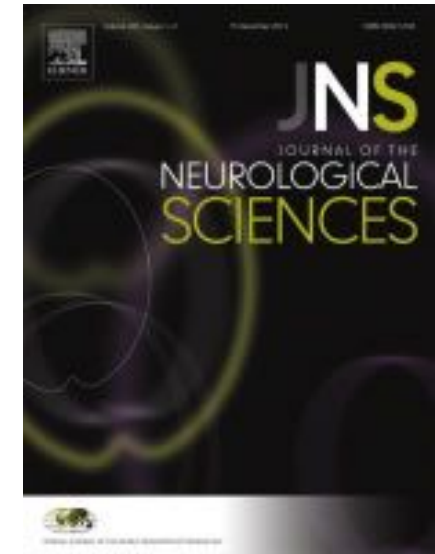
Pages: 98-102


Description

Apolipoprotein E (apoE), a plasma apolipoprotein that plays a central role in lipoprotein metabolism, is localized in the senile plaques, congophilic angiopathy, and neurofibrillary tangles of Alzheimer disease. To follow up on this suggestion, we compared the binding of synthetic amyloid beta (beta/A4) peptide to purified apoE4 and apoE3, the most common isoform. Both isoforms bound synthetic beta/A4 peptide, the primary constituent of the plaque and angiopathy, forming a complex that resisted dissociation by boiling in SDS. Binding of beta/A4 peptide was saturable at 10^{-4} M peptide and required residues 12-28. Examination of apoE fragments revealed that residues 244-272 are critical for complex formation. Both oxidized apoE4 and apoE3 bound beta/A4 peptide; however, binding to apoE4 was observed in minutes, whereas binding to apoE3 required hours. In addition, apoE4 did not bind beta/A4 peptide at pH < 6.6, whereas apoE3 bound beta/A4 peptide from pH 7.6 to 4.6. Together these results indicate differences in the two isoforms in complexing with the beta/A4 peptide. Binding of beta/A4 peptide by oxidized apoE may determine the sequestration or targeting of either apoE or beta/A4 peptide, and isoform-specific differences in apoE binding or oxidation may be involved in the pathogenesis of the intra- and extracellular lesions of Alzheimer disease.



The name of the article	Observations on the brains of demented old people.
Authors	Tomlinson BE, Blessed G, Roth M.
Publication info	<p>Year: 1970 Volume: 11(3) Pages: 205-42</p>
Description	<p>The brains from 50 cases of proven dementia in old age were examined and various features objectively assessed, and compared with similar features in a group of non-demented (controls) old people. Statistically significant differences were found in the two groups in relation to cortical atrophy, ventricular dilatation, senile plaque formation, Alzheimer's neurofibrillary change, granulo-vacuolar degeneration and the quantity of cerebral softening. Seventy per cent of the cases showed more changes of senile or ischaemic type than any control, and in 90% the changes found were probably sufficient to allocate the cases to a specific diagnostic category. 50% were considered to be cases of senile dementia, showing the histological features of Alzheimer's disease, the majority with no or small ischaemic lesions. By contrast only 12% appeared to be definitely and solely produced by cerebral softening (arteriosclerotic dementia) although a further 5% were probably of this origin. Mixed cases, with the pathological features of senile and arteriosclerotic disease, accounted for 8% with certainty, and probably for a further 10%, though the evidence in these latter cases was less certain. One case of Wernicke's encephalopathy was seen and 1 was possibly of traumatic origin. Five cases (10%) were not classified on pathological grounds, but in only 2 of these were no significant lesions found and 1 of these may have been mentally subnormal from birth.</p>



<p>The name of the article</p>	<p>p53 mutant mice that display early ageing-associated phenotypes.</p>	
<p>Authors</p>	<p>Tyner SD et.al..</p>	
<p>Publication info</p>	<p>Year: 2002 Volume: 415(6867) Pages: 45-53</p>	
<p>Description</p>	<p>The p53 tumour suppressor is activated by numerous stressors to induce apoptosis, cell cycle arrest, or senescence. To study the biological effects of altered p53 function, we generated mice with a deletion mutation in the first six exons of the p53 gene that express a truncated RNA capable of encoding a carboxy-terminal p53 fragment. This mutation confers phenotypes consistent with activated p53 rather than inactivated p53. Mutant (p53^{+/m}) mice exhibit enhanced resistance to spontaneous tumours compared with wild-type (p53^{+/+}) littermates. As p53^{+/m} mice age, they display an early onset of phenotypes associated with ageing. These include reduced longevity, osteoporosis, generalized organ atrophy and a diminished stress tolerance. A second line of transgenic mice containing a temperature-sensitive mutant allele of p53 also exhibits early ageing phenotypes. These data suggest that p53 has a role in regulating organismal ageing.</p>	

The name of the article

Hereditary early-onset Parkinson's disease caused by mutations in PINK1.

Authors

Valente EM et.al..

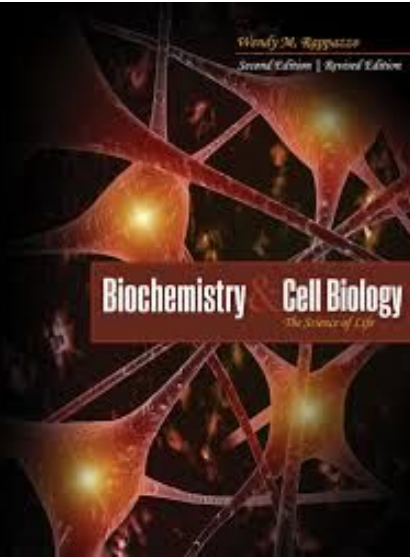
Publication info

Year: 2004
Volume: 304(5674)
Pages: 1158-60

Description

Parkinson's disease (PD) is a neurodegenerative disorder characterized by degeneration of dopaminergic neurons in the substantia nigra. We previously mapped a locus for a rare familial form of PD to chromosome 1p36 (PARK6). Here we show that mutations in PINK1 (PTEN-induced kinase 1) are associated with PARK6. We have identified two homozygous mutations affecting the PINK1 kinase domain in three consanguineous PARK6 families: a truncating nonsense mutation and a missense mutation at a highly conserved amino acid. Cell culture studies suggest that PINK1 is mitochondrially located and may exert a protective effect on the cell that is abrogated by the mutations, resulting in increased susceptibility to cellular stress. These data provide a direct molecular link between mitochondria and the pathogenesis of PD.



The name of the article	Free radicals and antioxidants in normal physiological functions and human disease.	
Authors	Valko M et.al..	
Publication info	Year: 2007 Volume: 39(1) Pages: 44-84	
Description	<p>Reactive oxygen species (ROS) and reactive nitrogen species (RNS, e.g. nitric oxide, NO(*)) are well recognised for playing a dual role as both deleterious and beneficial species. Overproduction of ROS (arising either from mitochondrial electron-transport chain or excessive stimulation of NAD(P)H) results in oxidative stress, a deleterious process that can be an important mediator of damage to cell structures, including lipids and membranes, proteins, and DNA. Ironically, various ROS-mediated actions in fact protect cells against ROS-induced oxidative stress and re-establish or maintain "redox balance" termed also "redox homeostasis". The "two-faced" character of ROS is clearly substantiated. This review will describe the: (i) chemistry and biochemistry of ROS/RNS and sources of free radical generation; (ii) damage to DNA, to proteins, and to lipids by free radicals; (iii) role of antioxidants (e.g. glutathione) in the maintenance of cellular "redox homeostasis"; (iv) overview of ROS-induced signaling pathways; (v) role of ROS in redox regulation of normal physiological functions, as well as (vi) role of ROS in pathophysiological implications of altered redox regulation (human diseases and ageing). Attention is focussed on the ROS/RNS-linked pathogenesis of cancer, cardiovascular disease, atherosclerosis, hypertension, ischemia/reperfusion injury, diabetes mellitus, neurodegenerative diseases (Alzheimer's disease and Parkinson's disease), rheumatoid arthritis, and ageing.</p>	

The name of the article

Questioning Macular Pigment Measurement Methods and Genetic Risk of Age-Related Macular Degeneration.

Authors

Stephen Beatty, MD; Rebecca Power, MSc; John Nolan, PhD

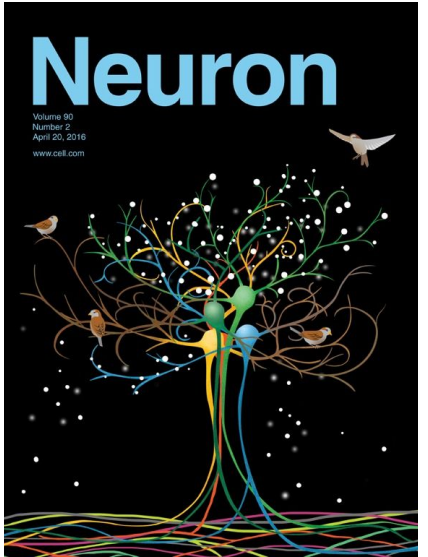
Publication info

Year: 2018
Volume: 136 (4)
Pages: 453-

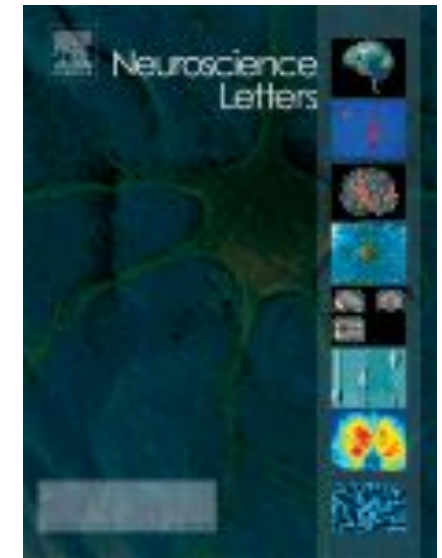
Description

The article titled “Effect of Dietary Supplementation With Lutein, Zeaxanthin, and ω -3 on Macular Pigment: A Randomized Clinical Trial,” by Korobelnik et al has drawn conclusions that may not follow readily from the data. In specific, the finding that macular pigment (MP) does not increase in response to supplemental lutein among first-generation offspring of patients with neovascular age-related macular degeneration (AMD) might not be correct. In this study, 2 techniques were used to measure MP. The first technique, the use of a MPD-Visucam has been independently discredited y multiple investigators on multiple occasions.



The name of the article	Tau proteins of Alzheimer paired helical filaments: abnormal phosphorylation of all six brain isoforms	
Authors	Goedert M, Spillantini MG, Cairns NJ, Crowther RA	
Publication info	Year: 1992 Volume: 8(1) Pages: 159-168	
Description	<p>Preparations of dispersed paired helical filaments (PHFs) from the brains of Alzheimer's disease and Down's syndrome patients display on gels three principal bands corresponding to abnormally modified forms of the microtubule-associated protein tau. Interpretation of the pattern is difficult because there are six tau isoforms in normal brain and phosphorylation changes their mobility. By enzymatic dephosphorylation at high temperature, we have shifted the three abnormal bands obtained from dispersed PHFs to align with the six nonphosphorylated tau isoforms. By using antibodies specific for some of the inserts that distinguish the various isoforms and label PHFs, we have established a correspondence between PHFs, abnormal bands, and isoforms. This identification of isoforms is a necessary step in unravelling the molecular pathogenesis of PHFs.</p>	

The name of the article	Sequencing of exons 16 and 17 of the beta-amyloid precursor protein gene in 14 families with early onset Alzheimer's disease fails to reveal mutations in the beta-amyloid sequence.
Authors	Johnston J, Lilius L, Axelman K, Cowburn R, Johansson K, Viitanen M, Winblad B, Lannfelt L.
Publication info	<p>Year: 1991 Volume: 133 (1) Pages: 1-2</p>
Description	<p>A mutation within exon 17 at codon 717 of the β-amyloid protein precursor (APP) gene is one cause of early onset familial Alzheimer's disease. Direct sequencing of exons 16 and 17 of the β-amyloid precursor protein gene in 14 families with familial early onset Alzheimer's disease without the known pathogenic mutation (APP717) failed to reveal other mutations within the β-amyloid sequence in this form of the disorder.</p>



Books on Longevity Published in UK

Longevity Books

1. The Telomere Effect: A Revolutionary Approach to Living Younger, Healthier, Longer
2. Aging in World History
3. The Psychology of Control and Aging
4. Approaches to Discourse in Dementia
5. Care-Giving in Dementia: Volume 1: Research and Applications
6. Behavior, Health, and Aging
7. Ageing Populations in Post-Industrial Democracies: Comparative Studies of Policies and Politics
8. Gerontology and Geriatrics Collections
9. Perspectives on Human Memory and Cognitive Aging: Essays in Honor of Fergus Craik
10. Aging and economic growth in the pacific region
11. Researching later life and ageing: expanding qualitative research horizons
12. The psychology of ageing: an introduction
13. Representing ageing: images and identities
14. Old age and disease in early modern medicine
15. An introduction to gerontology
16. Guide to the psychiatry of old age
17. The roadmap to 100: the breakthrough science of living a long and healthy life
18. Social Gerontology: A Multidisciplinary Perspective
19. Emerging drugs and targets for Alzheimer's disease
20. Major issues in cognitive aging
21. Cognitive Neuroscience of Aging: Linking Cognitive and Cerebral Aging
22. Imaging the Aging Brain
23. Oxford textbook of old age psychiatry
24. Neurobiology of Alzheimer's disease
25. Aging and Diversity: An Active Learning Experience
26. The Handbook of Aging and Cognition
27. Ageing in Asia: Asia's Position in the New Global Demography
28. Blue Books of Neurology Series: The Dementia 2
29. Handbook of Parkinson's disease
30. Physiological basis of aging and geriatrics
31. Re-Aligning Feminist Thinking
32. The Cambridge handbook of age and ageing
33. Neurodegenerative diseases: neurobiology, pathogenesis and therapeutics
34. Successful Aging: A Special Issue of research in Human Development
35. Human senescence: evolutionary and biocultural perspectives
36. The fountain of youth: cultural, scientific, and ethical perspectives on a biomedical goal
37. Gender and Ageing: Changing Roles and Relationships
38. Chromosomal instability and aging: basic science and clinical implications
39. Neurobiology of Alzheimer's disease
40. Geriatric dermatology
41. Aging in a Changing Society
42. Time of our lives: the science of human aging
43. Cognitive Aging: A Primer
44. Skin disease in old age
45. Successful Aging: Perspectives from the Behavioral Sciences
46. Controversial issues in Aging
47. Current Directions in Adulthood and Aging
48. Genes and aging
49. Understanding ageing
50. Understanding aging and diversity: theories and concepts

The name of the article

The Telomere Effect: A Revolutionary Approach to Living Younger, Healthier, Longer

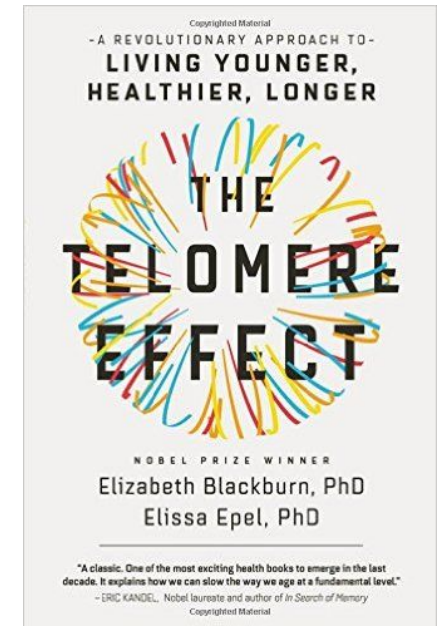
Authors

Blackburn, Elizabeth; Epel, Elissa

Publisher info

Year: --

Publisher: Orion Publishing Co



While many factors contribute to aging and illness, Dr. Elizabeth Blackburn discovered a biological indicator called telomerase, the enzyme that replenishes telomeres, which protect our genetic heritage. Dr. Blackburn and Dr. Elissa Epel's research shows that the length and health of one's telomeres are a biological underpinning of the long-hypothesized mind-body connection. They and other scientists have found that changes we can make to our daily habits can protect our telomeres and increase our health spans (the number of years we remain healthy, active, and disease-free).

Description

THE TELOMERE EFFECT reveals how Blackburn and Epel's findings, together with research from colleagues around the world, cumulatively show that sleep quality, exercise, aspects of diet, and even certain chemicals profoundly affect our telomeres, and that chronic stress, negative thoughts, strained relationships, and even the wrong neighborhoods can eat away at them.

The name of the article

Aging in World History

Authors

David G. Troyansky

Publisher info

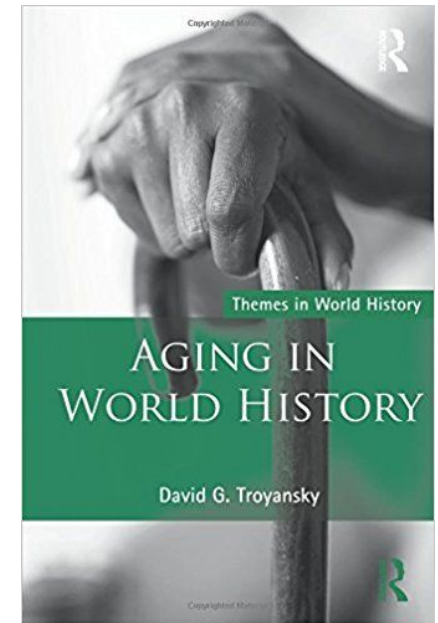
Year: ---

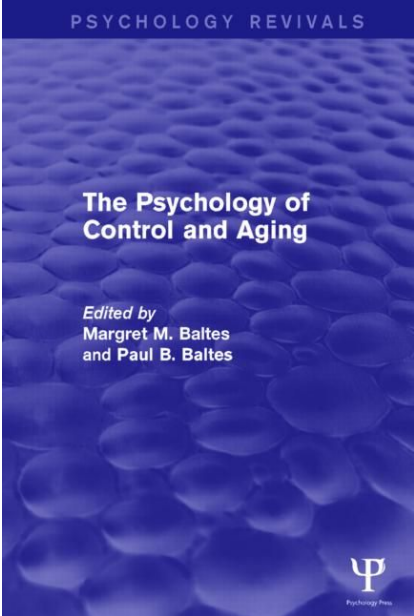
Publisher: Routledge

Description

In *Aging in World History*, David G. Troyansky presents the first global history of aging. At a time when demographic aging has become a source of worldwide concern, and more people are reaching an advanced age than ever before, the history of old age helps us understand how we arrived at the treatment of aging in the modern world. This concise volume expands that history beyond the West to show how attitudes toward aging, the experiences of the aged, and relevant demographic patterns have varied and coalesced over time and across the world.

From the ancient world to the present, this book introduces students and general readers to the history of aging on two levels: the experience of individual men and women, and the transformation of populations. With its attention to cultural traditions, medicalization, decades of historical scholarship, and current gerontology, *Aging in World History* is the perfect starting point for an exploration of this increasingly universal aspect of human experience.



<p>The name of the article</p>	<p>The Psychology of Control and Aging</p>	
<p>Authors</p>	<p>Baltes, Margaret M. & Baltes, Paul B.</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Psychology Press</p>	
<p>Description</p>	<p>Originally published in 1986, the central topic of this book is the analysis and application of control-related beliefs and behaviours for theory and practice in the psychology of aging. The volume was written for two specific interrelated purposes aimed at cross-fertilization between the psychology of control and the field of gerontology. The first purpose was to summarise available research and theory on the psychology of control for researchers and professionals interested in gerontology at the time. The second was to enrich the field of the psychology of control.</p>	

The name of the article

Approaches to Discourse in Dementia

Authors

Guendouzi, Jacqueline A. & Mueller, Nicole

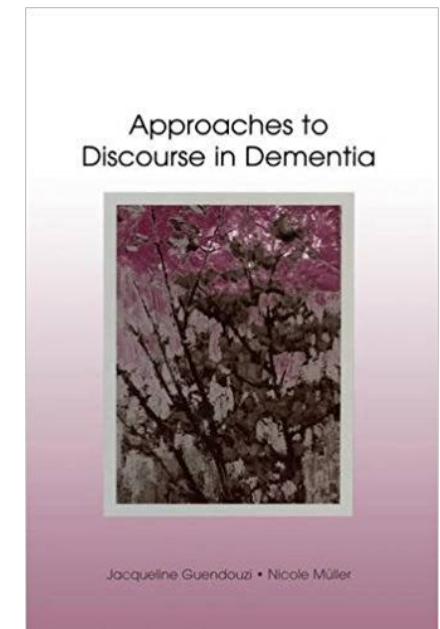
Publisher info

Year: --

Publisher: Psychology Press

Description

The qualitative analysis of naturally occurring discourse in neurogenic communication disorders, specifically in dementia studies, has experienced recent burgeoning interest from wide-ranging disciplines. This multidisciplinary has been exciting, but has added contextual confusion. This book advances the study of discourse in dementia by systematically exploring and applying different approaches to the same free conversational data sets, collected and transcribed by the authors. The applied methodologies and theories comprise a useful sourcebook for students, researchers, and practitioners alike.



The name of the article

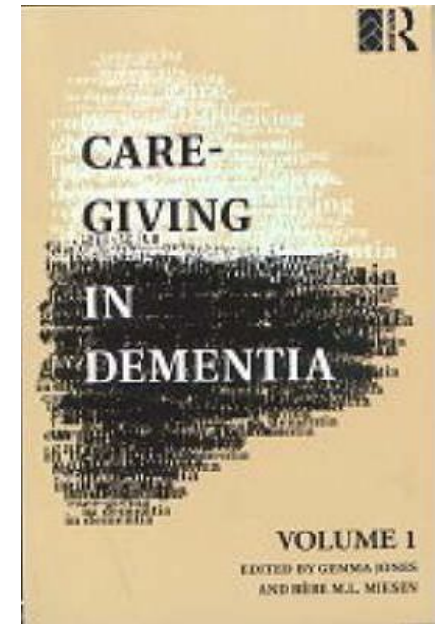
Care-Giving in Dementia: Volume 1: Research and Applications

Authors

Jones, Gemma M.M., Miesen, Bere M.L. & Birren, James

Publisher info

Year: --
Publisher: Routledge



Description

A practical book for practical people, Care-Giving in Dementia integrates neurobiological information about dementia with specific developments in care-giving. Multi-disciplinary and multi-professional in its approach, it emphasizes the variety of techniques that can be used effectively in caring for persons with dementia.

The name of the article

Behavior, Health, and Aging

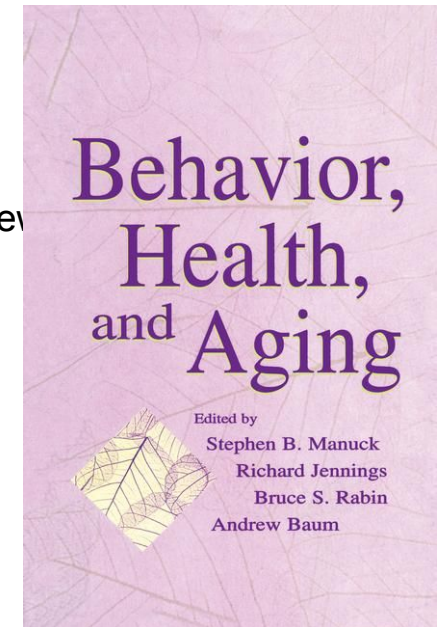
Authors

Manuck, Stephen B., Jennings, Richard, Rabin, Bruce & Baum, Andrew

Publisher info

Year: --

Publisher: Psychology Press



Description

A dramatic shift in the average age of the U.S. population and the increasing number of elderly Americans has introduced new and challenging healthcare dilemmas. This book addresses these issues with contributed chapters by the leading authorities in the field of behavioral medicine. It deals with health and healthcare needs of the elderly by considering basic changes that result from aging and some of the more specific problems that accompany it.

Content highlights include a review of the basic tenets of genetics and molecular biology including some of the methods of looking at heritable differences in health and well-being. Quality of life concerns are addressed, including the differences between men and women, as well as other gender issues. Several chapters deal with the effects of aging on immunity. The latter part of the book emphasizes the psychosocial implications of aging on cardiovascular disease. Chronic illness among the elderly is also addressed.

The name of the article

**Ageing Populations in Post-Industrial Democracies:
Comparative Studies of Policies and Politics**

Authors

Jones, Gemma M.M., Miesen, Bere M.L. & Birren, James

Publisher info

Year: --
Publisher: Routledge



Description

Most advanced democracies are currently experiencing accelerated population ageing, which fundamentally changes not just their demographic composition; it can also be expected to have far-reaching political and policy consequences.

This volume brings together an expert set of scholars from Europe and North America to investigate generational politics and public policies within an approach explicitly focusing on comparative political science. This theoretically unified text examines changing electoral policy demands due to demographic ageing, and features analysis of USA, UK, Japan, Germany, Italy and all major EU countries.

The name of the article

Gerontology and Geriatrics Collections

Authors

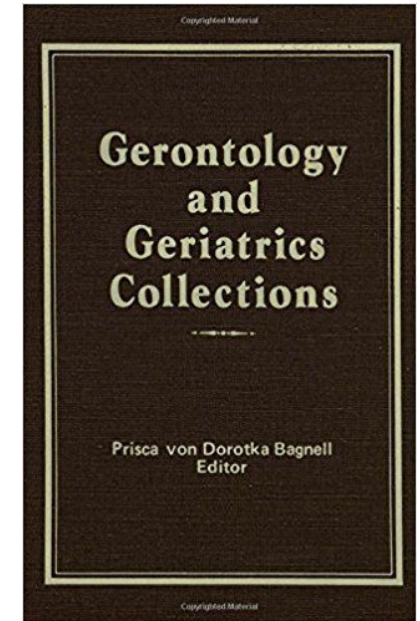
Ash, Lee (edited by Prisca von Dorotka Bagnell)

Publisher info

Year: --
Publisher: Routledge

Description

An essential resource for any library where research on aging is conducted--a guide to important and unique holdings in the field.



The name of the article

Perspectives on Human Memory and Cognitive Aging: Essays in Honor of Fergus Craik

Authors

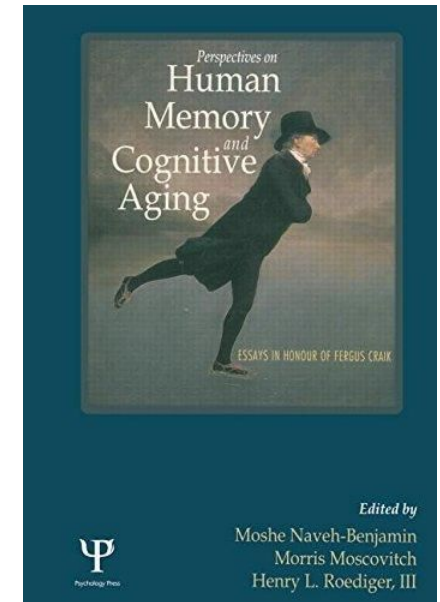
Naveh-Benjamin, Moshe; Moscovitch, Morris & Roediger, Henry L.

Publisher info

Year: --
Publisher: Psychology Press

Description

Divided into four parts, the first section of this book deals with levels of processing and memory theory, the second addresses working memory and attention, the third deals with cognitive aging, and the last addresses neuroscience perspectives.



The name of the article

Aging and economic growth in the pacific region

Authors

Kohsaka, Akira

Publisher info

Year: --

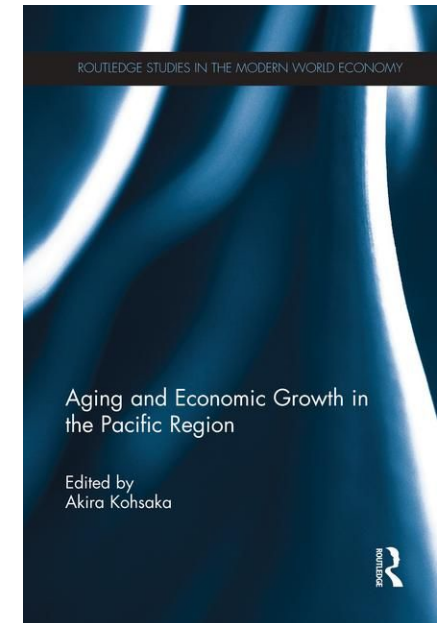
Publisher: Routledge

Description

The Pacific region is in the final stage of the demographic transition with declining fertility and expanding life expectancy, where significant changes in population size and age distribution, i.e. "aging" have been and will be witnessed. They are unprecedented and going to affect economic growth in various ways.

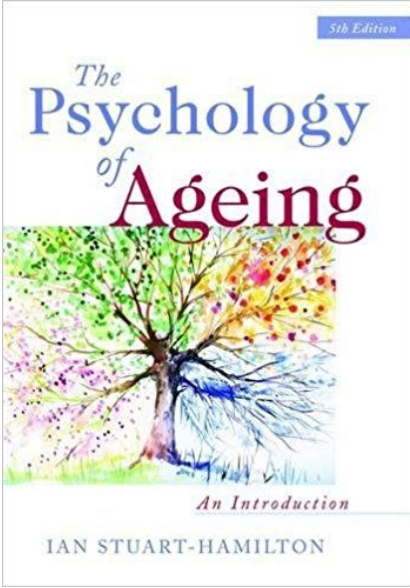
This book focuses on the Pacific region, one of the most rapidly aging regions, and examines the possible risk aspects. Particularly, the book takes into account of possible adjustments both endogenous and exogenous (including policy responses) to the new reality of aging population. It also assesses their quantitative influences on the growth impact of aging population, which might be very different from those in the past experience.

The book highlights the doubts on the steadiness across periods and similarities across economies of parameters relevant to labor market participation, saving and investment of private sectors, and productivity growth, which a bulk of prior studies were crucially based on. Policy measures to enhance labor supply, domestic savings and productivity have been scrutinized. The book discusses the policy alternatives in practice and their implementations and/or planning of each category across regional economies.



The name of the article	Researching later life and ageing: expanding qualitative research horizons
Authors	Leotowitsch, Miranda
Publisher info	<p>Year: --</p> <p>Publisher: Palgrave Macmillan</p>
Description	<p>This collection on researching later life and ageing critically reflects upon the qualitative methods used in gaining knowledge of under-researched groups of older people and sets out future research agendas.</p>



<p>The name of the article</p>	<p>The psychology of ageing: an introduction</p>	
<p>Authors</p>	<p>Stuart-Hamilton, Ian</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Jessica Kingsley Pub</p>	
<p>Description</p>	<p>This well-established and accessible text has been completely revised in this expanded fifth edition. Each chapter has been updated, often extensively, to reflect current thinking, and an important new chapter on death, dying and bereavement has been added. Providing a comprehensive overview of the psychological processes of ageing, the text examines what constitutes older age, and presents the latest theory and research in a variety of domains, including intellectual change in later life; ageing and memory; ageing and language; ageing, personality and lifestyle; and mental health and ageing. Consideration is given to the problems inherent in measuring the psychological status of older people, and the author looks to the future to answer the question “what will constitute 'being old'?” This new edition is essential reading for all those working or training to work with older people, and a key text for students.</p>	

The name of the article

Representing ageing: images and identities

Authors

Yläanne, Virpi

Publisher info

Year: --

Publisher: Palgrave Macmillan

Description

This well-established and accessible text has been completely revised in this expanded fifth edition. Each chapter has been updated, often extensively, to reflect current thinking, and an important new chapter on death, dying and bereavement has been added.

Providing a comprehensive overview of the psychological processes of ageing, the text examines what constitutes older age, and presents the latest theory and research in a variety of domains, including intellectual change in later life; ageing and memory; ageing and language; ageing, personality and lifestyle; and mental health and ageing. Consideration is given to the problems inherent in measuring the psychological status of older people, and the author looks to the future to answer the question “what will constitute 'being old'?”

This new edition is essential reading for all those working or training to work with older people, and a key text for students.



The name of the article

Old age and disease in early modern medicine

Authors

Schaefer, Daniel

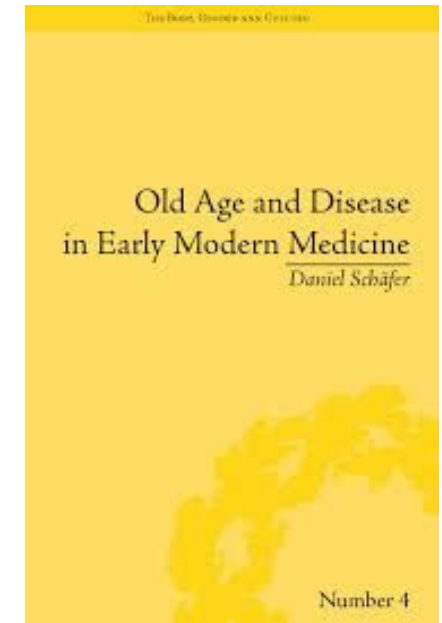
Publisher info

Year: --

Publisher: Pickering & Chatto Ltd

Description

Provides an impressively knowledgeable and comprehensive assessment of the understanding of old age throughout the early modern period and across Europe.' Jennifer Evans, *Early Modern Medicine* 'The strength of this book is in its impressive synthesis of a very broad topic and here it makes a very valuable contribution to the already crowded historiography of old age.' *British Journal for the History of Science*.



The name of the article

An introduction to gerontology

Authors

Stuart-Hamilton, Ian

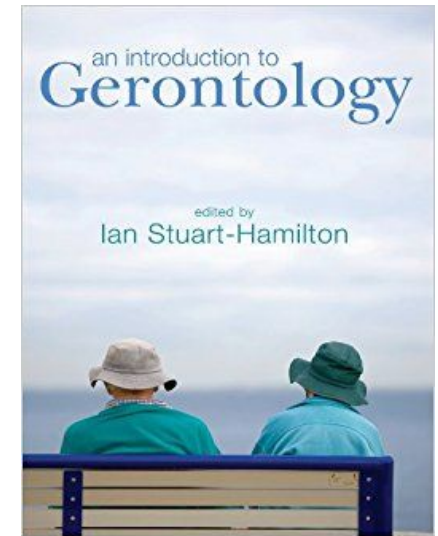
Publisher info

Year: --

Publisher: Cambridge University Press

Description

With the world's population getting increasingly older, there has never been a more pressing need for the study of old age and ageing. An Introduction to Gerontology provides a wide-ranging introduction to this important topic. By assuming no prior expert knowledge and avoiding jargon, this book will guide students through all the main subjects in gerontology, covering both traditional areas, such as biological and social ageing, as well as more contemporary areas, such as technology, the arts, sexuality and education of older adults. An Introduction to Gerontology is written by a team of international authors with multidisciplinary backgrounds who draw evidence from a variety of different perspectives and traditions.



The name of the article

Guide to the psychiatry of old age

Authors

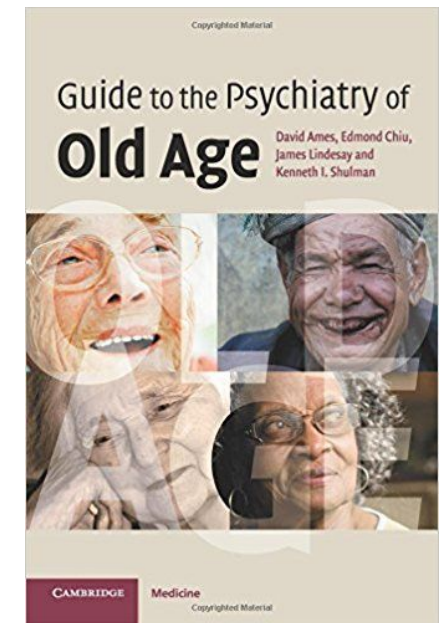
Ames, David; Chiu, Edmond, Lindesay, James & Shulman, Kenneth I.

Publisher info

Year: --
Publisher: Cambridge University Press

Description

With rapid ageing of the world's population, psychiatry of old age has become a crucial discipline. This succinct guide to the scope and practice of the psychiatry of old age provides an up-to-date summary of existing knowledge, best practice and future challenges for the specialty, from a global perspective. From definitions and demography to epidemiology, aetiology, and principles of assessment, diagnosis and management, each chapter is sharp, clear and practical, enhanced by tables and diagrams for quick assimilation and reference on the ward or in the clinic. As well as the main psychiatric conditions encountered in old age, coverage also includes legal and ethical issues, and the neglected topic of alcohol and drug abuse in the elderly. Written by leading clinicians, teachers and researchers and offering a much-needed international focus, this compact guide is essential reading for practising psychiatrists and geriatricians, as well as trainees, nurses and medical students.



The name of the article

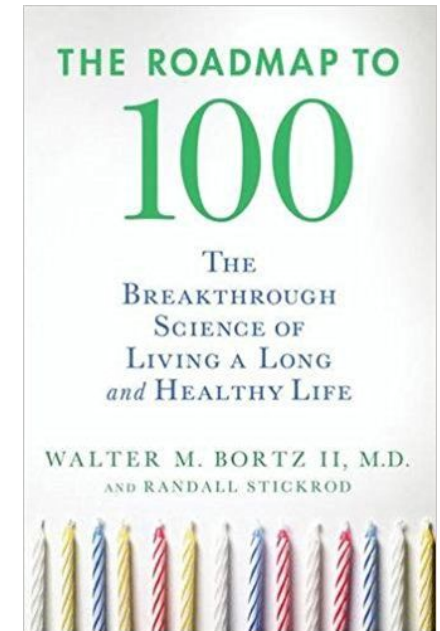
The roadmap to 100: the breakthrough science of living a long and healthy life

Authors

Bortz, Walter M. & Stickrod, Randall

Publisher info

Year: --
Publisher: Palgrave Macmillan



Description

With a baby boomer turning sixty every ten seconds, we are rapidly becoming an aging society. But cutting edge research on the connection between age and disease shows us that many of the preconceptions we had about how to grow old need a second look. This groundbreaking book is full of take-away prescriptive advice which the nearly seventy-five million boomers in this nation will value. Top gerontologist and Stanford medical school professor Dr. Walter Bortz and co-author Randall Stickrod draw on new science and a thirty-year longitudinal study of centenarians to show that:

- Genetics plays a smaller role in aging than previously thought
- Senility, dementia, and other diseases of the elderly, are largely preventable and not an inevitable consequence of aging
- Engagement, through sexual relationships, social interaction, and professional activity, is a key factor in long, healthy lives
- Physical fitness can recover at least 30 years of aging

The name of the article

Social Gerontology: A Multidisciplinary Perspective

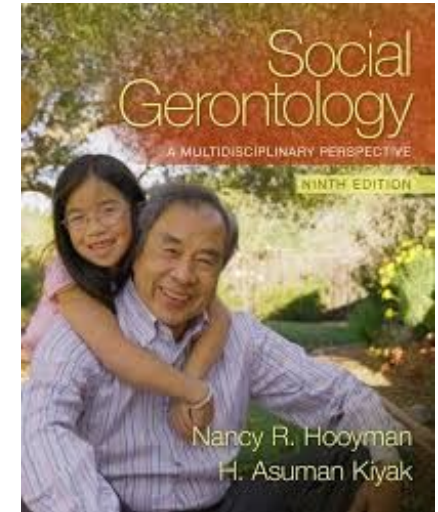
Authors

Hooyman, Nancy & Kiyak, H. Asuman

Publisher info

Year: --

Publisher: Pearson



Description

This best-selling, multidisciplinary, social aging text presents positive images of aging while considering the many factors that contribute to how aging individuals experiences life.

Up-to-date and expanded, this text offers a comprehensive view that presents aging positively, portraying concepts of active aging and resiliency, and defining “productive aging” by elaborating on the numerous ways elders contribute to society and their families. Based on the latest research findings, it offers greater depth to critical issues of aging, attending to differences by age and cohort, gender, ethnic minority status, sexual orientation, and socio-economic status.

The name of the article

Emerging drugs and targets for Alzheimer's disease

Authors

Martinez, Ana

Publisher info

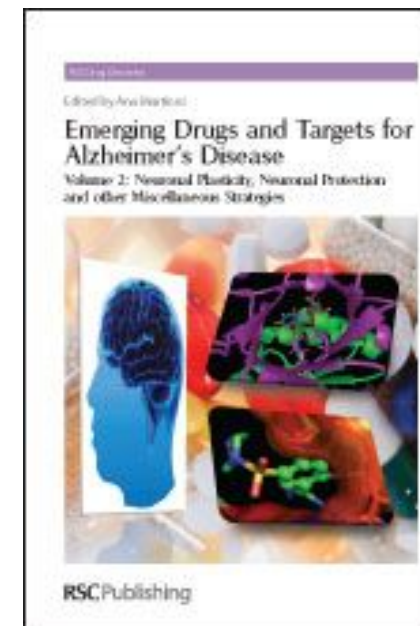
Year: --

Publisher: Royal Society of Chemistry

Description

Alzheimer's disease is the most prevalent neurodegenerative disorder in the elderly. A recent study from the Bloomberg School of Public Health recently estimated that over 26 million people were living with the disease in 2006 and that the global prevalence of the disease will grow to 106 million by 2050. By that time, 43 per cent of those living with the disease will need high-level care, equivalent to that of a nursing home. According to this study, interventions that could delay the onset of the disease by as little as one year would reduce the prevalence of the disease by 12 million fewer cases in 2050. These figures reinforce how important it is to find an effective intervention for Alzheimer's disease.

Emerging Drugs and Targets for Alzheimer's Disease collects some of the most outstanding examples of new drugs currently under pharmaceutical development or new targets in the validation process that will reach the Alzheimer's drug market over the next few years as disease modifying drugs. Written by a team of distinguished experts Volume 1: Beta-Amyloid, Tau Protein and Glucose Metabolism is an essential resource for scientists in the pharmaceutical and biotechnology industries and academics working in the neurosciences field.



The name of the article

Major issues in cognitive aging

Authors

Salthouse, Timothy

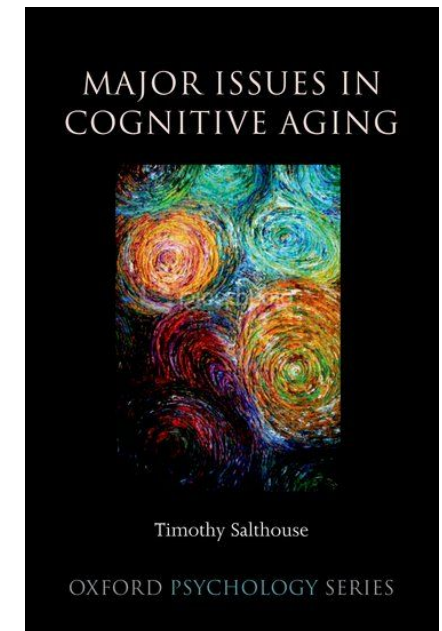
Publisher info

Year: --

Publisher: Oxford University Press

Description

In recent years the field of cognitive aging has flourished and expanded into many different disciplines. It is probably, therefore, inevitable that some of the research has become very narrow, primarily focused on "counting and classifying the wrinkles of aged behavior," rather than addressing more broad, general, and important questions. Timothy Salthouse's main goal in this book is to try to identify some of the major phenomena in the field of cognitive aging, and discuss issues relevant to the investigation and interpretation of them. He does not attempt to provide a comprehensive survey of the research literature on aging and cognition because many excellent reviews are available in edited handbooks. His principal aim is rather to stimulate readers to think about the big questions in cognitive aging research, and how they might best be answered.



The name of the article

Cognitive Neuroscience of Aging: Linking Cognitive and Cerebral Aging

Authors

Cabeza, Roberto; Nyberg, Lars & Park, Denise

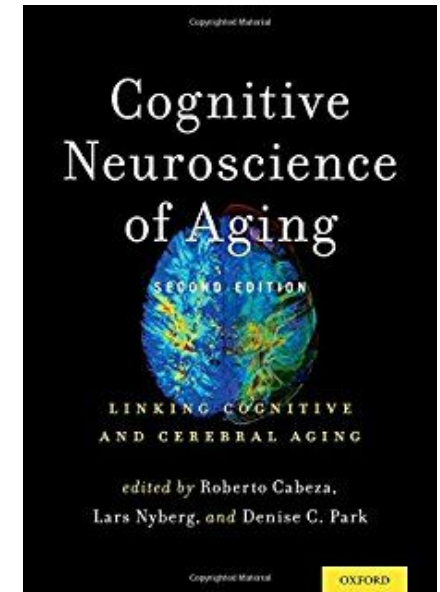
Publisher info

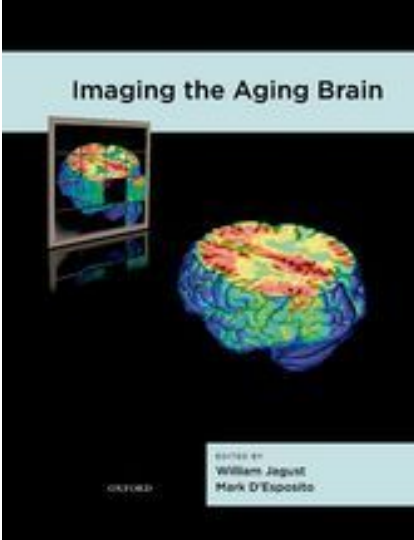
Year: --
Publisher: Oxford University Press

Description

This second edition of the popular Cognitive Neuroscience of Aging provides up-to-date coverage of the most fundamental topics in this discipline. Like the first edition, this volume accessibly and comprehensively reviews the neural mechanisms of cognitive aging appropriate in a variety of domains, including psychology, neuroscience, neuropsychology, neurology, and psychiatry.

The chapters are organized into three sections. The first section focuses on major questions regarding methodological approaches and experimental design. It includes chapters on structural imaging (MRI, DTI), functional imaging (fMRI), and molecular imaging (dopamine PET, etc), and covers multimodal imaging, longitudinal studies, and the interpretation of imaging findings. The second section concentrates on specific cognitive abilities, including attention and inhibitory control, executive functions, memory, and emotion. The third section turns to domains with health and clinical implications, such as the emergence of cognitive deficits in middle age, the role of genetics, the effects of modulatory variables (hypertension, exercise, cognitive engagement), and the distinction between healthy aging and the effects of dementia and depression.



<p>The name of the article</p>	<p>Imaging the Aging Brain</p>	
<p>Authors</p>	<p>Jaquist, William & D'Esposito, Mark</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Oxford University Press</p>	
<p>Description</p>	<p>This book contains chapters from experts in the fields of brain imaging, clinical neuroscience, and cognitive neuroscience who have studied the aging brain. Topics covered include technical factors in brain imaging, pathological basis of age-related structural and functional changes, neurochemistry and genetics of brain imaging in aging, and the use of imaging techniques in diagnosis, longitudinal testing, drug development and testing, and presymptomatic detection. The book is intended to be both a detailed review of the current status of brain imaging and aging and to serve as an introduction to the field for those who may be starting investigations using imaging techniques of PET, structural MRI, and functional MRI. It covers basic science approaches such as using fMRI to probe networks, as well as recent developments like amyloid imaging and the use of imaging as a biomarker in clinical trials.</p>	

The name of the article

Oxford textbook of old age psychiatry

Authors

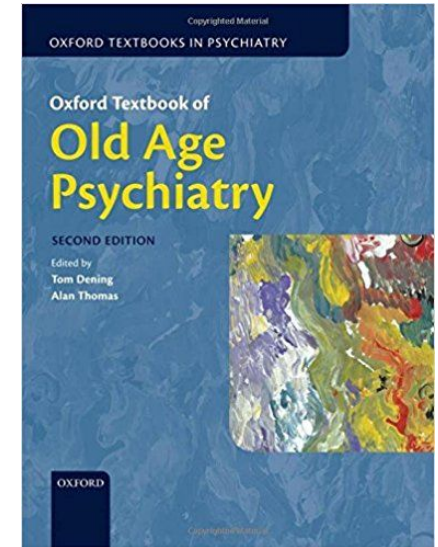
Jacoby, Robin; Oppenheimer, Catherine; Dening, Tom & Thomas, Alan

Publisher info

Year: --
Publisher: Oxford University Press

Description

The Oxford Textbook of Old Age Psychiatry, Second Edition, previously called Psychiatry in the Elderly, is an updated and revised version of this popular and highly respected textbook. This new edition maintains these strengths, with chapters covering the basic sciences underpinning old age psychiatry, clinical practice, psychiatric services for older people, specific disorders, and medico-legal and ethical issues. This new updated edition involves 96 contributors from around the world bringing a truly global perspective to the textbook, and highlighting both the common burdens and the differences in management from country to country. New chapters have been included to reflect the development of old age care, covering palliative care, ethics of caring, and living and dying with dementia. Chapters have been revised and updated throughout with expanded chapters including those on brain stimulation therapies, memory clinics and services, and capacity, which has been extended to include all mental capacity and decision making. Broad in its coverage, written by experts in their fields, and maintaining a clear structure throughout, the new second edition of the Oxford Textbook of Old Age Psychiatry is the essential reference for all old age psychiatrists as well as all those interested in the mental health care of older people.



The name of the article

Neurobiology of Alzheimer's disease

Authors

Dawbarn, David & Allen, Shelley..

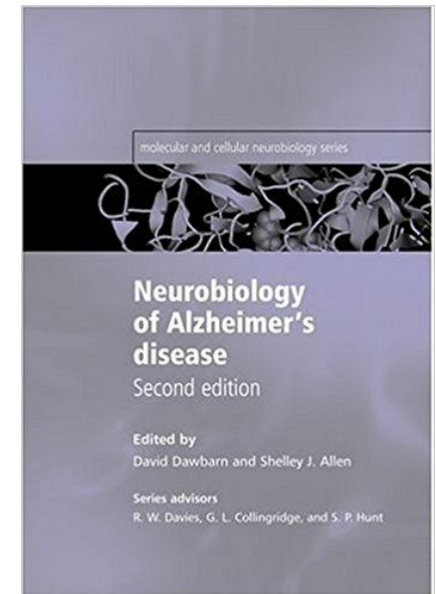
Publisher info

Year: --

Publisher: Oxford University Press

Description

Alzheimer's disease is the most common form of dementia in the elderly; 450,000 people in UK and 4.5 million people in the USA suffer with this disease. This 3rd edition of Neurobiology of Alzheimer's Disease gives a comprehensive and readable introduction to the disease, from molecular pathology to clinical practice.



The name of the article

Aging and Diversity: An Active Learning Experience

Authors

Mehrotra, Chandra M. & Wagner, Lisa S. /
Fried, Stephen & Mehrotra, Chandra M.

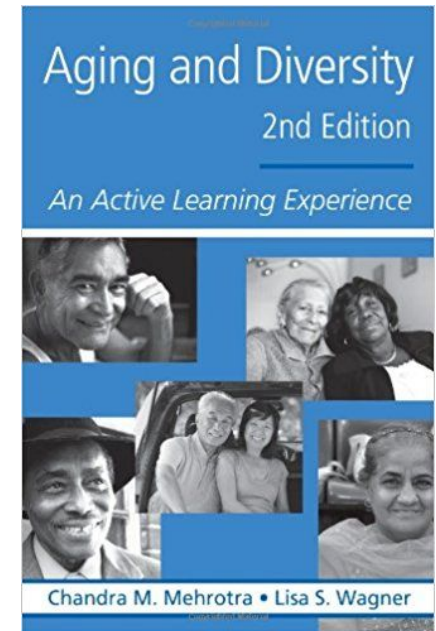
Publisher info

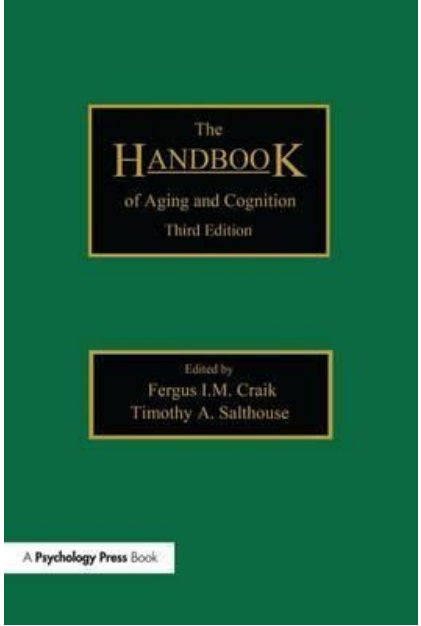
Year: --
Publisher: Routledge

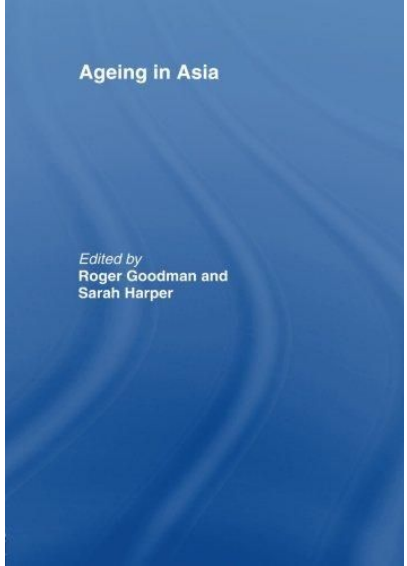
Description

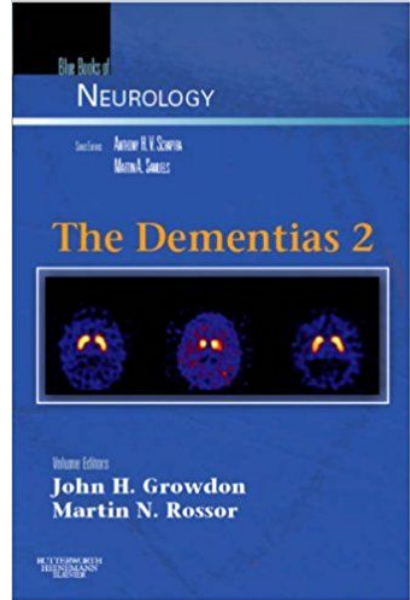
This new edition has been completely rewritten and includes chapters that address key topics in diversity and aging: research methods, psychological aging; health beliefs, behaviors, and services; health disparities; informal and formal care for older persons; work and retirement; religious affiliation and spirituality; and death, dying, and bereavement. Taking a broad view of diversity, Mehrotra and Wagner discuss elements of diversity such as gender, race or ethnicity, religious affiliation, social class, rural-urban community location and sexual orientation. Including these elements allows them to convey some of the rich complexities of our diverse culture - complexities that provide both challenges to meet the needs of diverse population and opportunities to learn how to live in a pluralistic society.

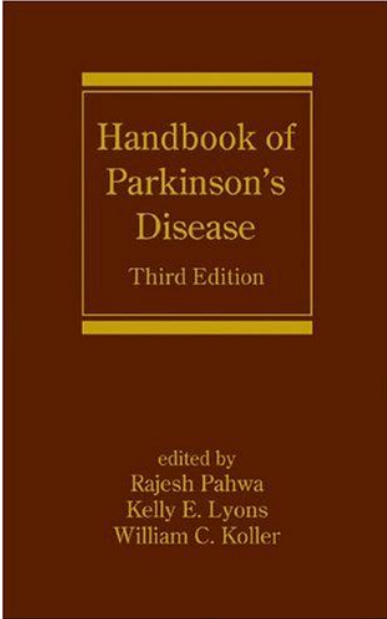
Throughout the book, Mehrotra and Wagner present up-to-date knowledge and scholarship in a way that engages readers in active learning. Rather than simply transmitting information, the authors place ongoing emphasis on developing readers' knowledge and skills; fostering higher order thinking and encouraging exploration of personal values and attitudes.



<p>The name of the article</p>	<p>The Handbook of Aging and Cognition</p>	
<p>Authors</p>	<p>Craik, Fergus I.M. & Salthouse, Timothy A.</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Psychology Press</p>	
<p>Description</p>	<p>Cognitive aging is a flourishing area of research. A significant amount of new data, a number of new theoretical notions, and many new research issues have been generated in the past ten years. This new edition reviews new findings and theories, enables the reader to assess where the field is today, and evaluates its points of growth. The chapters are organized to run from reviews of current work on neuroimaging, neuropsychology, genetics and the concept of brain reserve, through the 'mainstream' topics of attention, memory, knowledge and language, to a consideration of individual differences and of cognitive aging in a lifespan context. This edition continues to feature the broad range of its predecessors, while also providing critical assessments of current theories and findings.</p>	

<p>The name of the article</p>	<p>Ageing in Asia: Asia’s Position in the New Global Demography</p>	
<p>Authors</p>	<p>Goodman, Roger & Harper, Sarah</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Routledge</p>	
<p>Description</p>	<p>The volume takes four key themes related to ageing – the experience of old age; intergenerational relations; economics of and social policy for ageing; longevity and the culture of ageing - and examines how these issues are emerging in different regions of Asia, specifically, the former Soviet Union, South Asia, China, Japan and South-East Asia. In placing these Asian cases studies in the broader context of debates about, and policies on, ageing more generally, it brings them into the mainstream of comparative research on ageing from which they have been too often excluded. As the studies show, the relationship between ageing and poverty is a complex one and often reflects policy towards the aged rather than that the aged themselves are unproductive and dependent. Ageing, moreover, can no longer be considered as simply a national question; we also need to consider the implications of its global dimension in terms of issues such as human rights and quality of life.</p>	

<p>The name of the article</p>	<p>Blue Books of Neurology Series: The Dementia 2</p>	
<p>Authors</p>	<p>Growdon, John H. & Rossor, Martin</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Butterworth-Heinemann</p>	
<p>Description</p>	<p>This volume in the Blue Books of Neurology series provides you with rapid access to practical, clinical guidance on the diagnosis and treatment of all forms of dementia, including Alzheimer's disease, dementia with Lewy bodies, Parkinson's disease, and many others. Organized by the most common neurodegenerative diseases, it reflects new insights regarding commonalities among the neurodegenerative diseases, and clusters them according to their dominant molecular pathologic signatures, so you can best treat any dementia you see.</p> <p>Differentiate among various forms of dementia and provide the appropriate management strategy.</p> <p>Correlate neuroimaging with neuropsychological testing to form more accurate diagnoses. Administer the latest approved drugs to improve your patients' brain function. A new two-color design and full-color images throughout helps you access information more easily.</p> <p>New chapters and new authors help you incorporate the latest information and fresh perspectives into your practice.</p>	

The name of the article	Handbook of Parkinson's disease	
Authors	Pahwa, Rajesh & Lyons, Kelly E	
Publisher info	Year: -- Publisher: Informa Healthcare	
Description	<p>This volume has long prevailed as one of the leading resources on Parkinson's disease (PD). Fully updated with practical and engaging chapters on pathology, neurochemistry, etiology, and breakthrough research, this source spans every essential topic related to the identification, assessment, and treatment of PD.</p> <p>Reflecting the many advances that have taken place in the management of PD, this volume promotes a multidisciplinary approach to care and supplies new sections on the latest pharmacologic, surgical, and rehabilitative therapies, as well as essential diagnostic, imaging, and nonmotor management strategies.</p> <p>New to this edition:</p> <ul style="list-style-type: none"> • Early identification of premotor symptoms • Potential disease modification agents • Physical and occupational therapy 	

The name of the article

Physiological basis of aging and geriatrics

Authors

Timiras, Paola S.

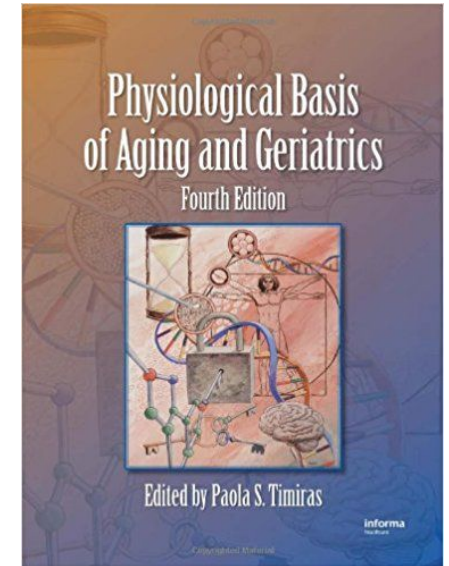
Publisher info

Year: --

Publisher: Informa Healthcare

Description

Extensively revised and updated to reflect the current state of knowledge in the study of aging, this Fourth Edition offers a complete profile of the aging process at all levels, from molecules and cells to demography and evolution. Written by international experts in current basic and clinical aging research, this text includes aspects of individual, comparative, and differential aging, and discussions of theories and mechanisms of aging. This invaluable reference illustrates how bodily systems, organs, and functions are affected with aging, describes how genetic and environmental factors influence age-related changes, and addresses some of the clinical consequences of these changes for health and longevity. Well illustrated, with numerous tables and graphs, this book presents up-to-date information from internationally renowned experts in various bio-medical fields.



The name of the article

Re-Aligning Feminist Thinking

Authors

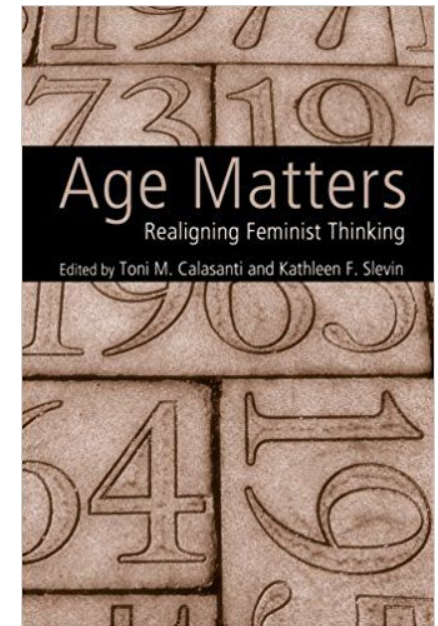
Calasanti, Toni M. & Slevin, Kathleen F.

Publisher info

Year: --
Publisher: Routledge

Description

This volume of original chapters is designed to bring attention to a neglected area of feminist scholarship - aging. After several decades of feminist studies we are now well informed of the complex ways that gender shapes the lives of women and men. Similarly, we know more about how gendered power relations interface with race and ethnicity, class and sexual orientation. Serious theorizing of old age and age relations to gender represents the next frontier of feminist scholarship. In this volume, leading national and international feminist scholars of aging take first steps in this direction, illuminating how age relations interact with other social inequalities, particularly gender. In doing so, the authors challenge and transform feminist scholarship and many taken for granted concepts in gender studies.



The name of the article

The Cambridge handbook of age and ageing

Authors

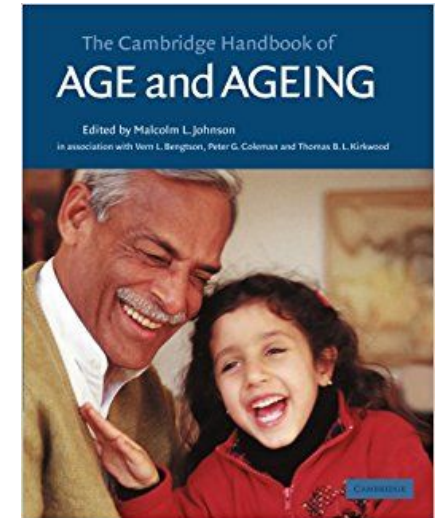
Johnson, Malcolm L.; Bengtson, Vern L.;
Coleman, Peter G. & Kirkwood, Thomas B.L.

Publisher info

Year: --
Publisher: Cambridge University Press

Description

Containing almost 80 original chapters, commissioned and written by the world's leading gerontologists from 16 countries and 5 continents, the broad focus of this handbook is on the behavioral and social sciences as well as important contributions from the biological and medical sciences. It provides comprehensive, accessible and authoritative accounts of all the key topics in the field, The Cambridge Handbook of Age and Ageing is a state-of-the-art guide to the current body of knowledge, theory, policy and practice relevant to age researchers and gerontologists around the world.



<p>The name of the article</p>	<p>Neurodegenerative diseases: neurobiology, pathogenesis and therapeutics</p>	
<p>Authors</p>	<p>Beal, M. Flint; Lang, Anthony E. & Ludolph, Albert C.</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Cambridge University Press</p>	
<p>Description</p>	<p>Neurodegenerative diseases are major contributors to disability and disease, with Alzheimer's and Parkinson's diseases the most prevalent. This major reference reviews the rapidly advancing knowledge of pathogenesis and treatment of neurodegenerative diseases in the context of a comprehensive survey of each disease and its clinical features. The editors and contributors are among the leading experts in the field internationally. Covering basic science, diagnostic tools and therapeutic approaches, the book focuses on all aspects of neurodegenerative disease, including the normal aging process. The dementias, prion diseases, Parkinson's disease and atypical parkinsonisms, neurodegenerative ataxias, motor neuron diseases, degenerative diseases with chorea, iron and copper disorders, and mitochondrial diseases, are all methodically presented and discussed, with extensive illustrations. In each case the underlying genetics, neuropathological and clinical issues are fully reviewed, making this the most complete as well as the most authoritative reference available to clinicians and neuroscientists.</p>	

The name of the article

Successful Aging: A Special Issue of research in Human Development

Authors

Krauss Whitbourne, Susan

Publisher info

Year: --
Publisher: Psychology Press

Description

As the Baby Boomer cohort moves from middle to later adulthood, it is likely this generation will redefine what it means to age. Growing older will no longer be synonymous with loss and decline. In fact, it is true that the majority of older adults today live fulfilling lives. This special issue discusses ways in which older adults can age successfully—that is—how individuals can maintain their physical and cognitive health, as well as maintain a healthy engagement with life. Also addressed are the universal challenges faced by older adults in their pursuit to age successfully. The objective of this collection is to serve as a stimulus to future research on aging and change in the later years of life. It presents an outstanding array of articles that cover a range of central issues in this area of study. Each author provides a unique insight into the mystery and challenge that awaits us all: the ability to age successfully.



<p>The name of the article</p>	<p>Human senescence: evolutionary and biocultural perspectives</p>	
<p>Authors</p>	<p>Crews, Douglas E.</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Cambridge University Press</p>	
<p>Description</p>	<p>Predicting water runoff in ungauged water catchment areas is vital to practical applications such as the design of drainage infrastructure and flooding defences, runoff forecasting, and for catchment management tasks such as water allocation and climate impact analysis. This full colour book offers an impressive synthesis of decades of international research, forming a holistic approach to catchment hydrology and providing a one-stop resource for hydrologists in both developed and developing countries. Topics include data for runoff regionalisation, the prediction of runoff hydrographs, flow duration curves, flow paths and residence times, annual and seasonal runoff, and floods. Illustrated with many case studies and including a final chapter on recommendations for researchers and practitioners, this book is written by expert authors involved in the prestigious IAHS PUB initiative. It is a key resource for academic researchers and professionals in the fields of hydrology, hydrogeology, ecology, geography, soil science, and environmental and civil engineering.</p>	

The name of the article

The fountain of youth: cultural, scientific, and ethical perspectives on a biomedical goal

Authors

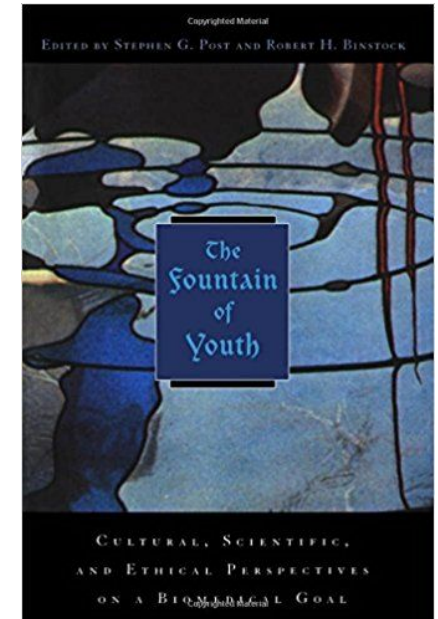
Post, Stephen G. & Binstock, Robert H.

Publisher info

Year: --
Publisher: Oxford University Press

Description

A wide variety of ambitions and measures to slow, stop, and reverse phenomena associated with aging have been part of human culture since early civilization. From alchemy to cell injections to dietary supplements, the list of techniques aimed at altering the processes of aging continues to expand. Charlatans, quacks, and entrepreneurs proffering anti-aging products and practices have always exploited uniformed customers and instilled doubt and apprehension toward practices intended to extend life. Recently, however, the pursuit of longevity has developed into a respectable scientific activity. Many biologists are substantially funded by the government and the private sector to conduct research that they believe will lead to effective anti-aging interventions.



<p>The name of the article</p>	<p>Gender and Ageing: Changing Roles and Relationships</p>	
<p>Authors</p>	<p>Arber, Sara; Davidson, Kate & Ginn, Jay</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Oxford University Press</p>	
<p>Description</p>	<p>This book is a follow-up to Arber and Ginn's award winning Connecting Gender and Ageing (1995). It contains original chapters from eminent writers on gender and ageing, addressing newly emergent areas within gender and ageing, including gender identity and masculinity in later life. Early work on gender and ageing was dominated by a focus on older women. The present collection breaks with this tradition by emphasizing changing gender roles and relationships, gender identity and an examination of masculinities in midlife and later life.</p> <p>A key theme running through the book is the need to reconceptualize partnership status, in order to understand the implications for women and men of widowhood, divorce and new forms of relationships, such as Living Apart Together (LAT-relationships). Another is the influence of socio-economic circumstances on how ageing is experienced and transitions are negotiated.</p>	

<p>The name of the article</p>	<p>Chromosomal instability and aging: basic science and clinical implications</p>	
<p>Authors</p>	<p>Hisama, Fuki M.; Weissman, Sherman M. & Martin, George M.</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Informa Healthcare</p>	
<p>Description</p>	<p>This text examines the relationship between DNA damage and repair, cellular senescence, genomic instability, and aging. The authors provide in-depth discussions of various types of DNA damage, the DNA repair network, and cellular responses to genetic damage to assess their impact on the modulation of aging processes and age-related diseases, including cancer development. Chromosomal Instability and Aging describes cloning genes for human chromosomal instability disorders, the causal factors and consequences of chromosomal injury, the telomere hypothesis of aging, and age-dependant mitochondrial genetic instability. It includes more than 2200 references to facilitate further research, making it an informative and timely guide.</p>	

The name of the article

Neurobiology of Alzheimer's disease

Authors

Dawbarn, David & Allen, Shelley

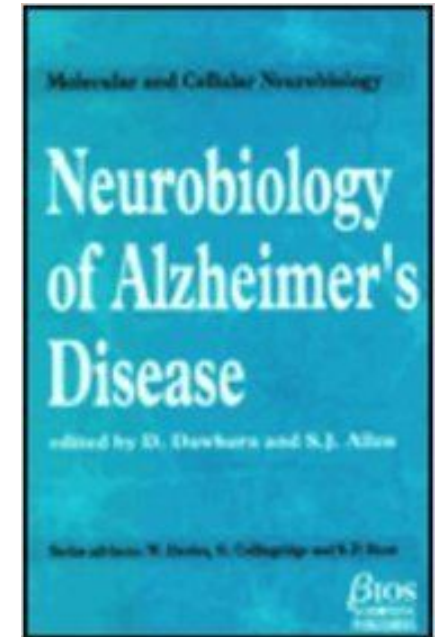
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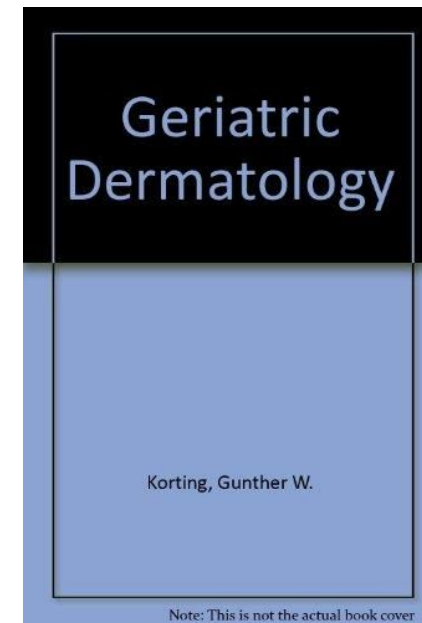
Publisher: Oxford University Press

Description

This new edition of a book first published in 1995, presents an accessible and up-to-date overview of Alzheimer's disease, with an emphasis on research into the molecular mechanisms of neuronal degeneration. Leading international experts have provided in-depth reviews of their areas of expertise, including coverage of the key molecules known to be involved, such as Ab, tau, apolipoprotein E, and the presenilins. Other areas covered include neuropathology, genetics, neurochemical pathology, inflammation, diagnosis, models of the disease, and opportunities for treatment, employing both current and emerging drug therapies. The book will provide a readable introduction for those new to the subject, as well as covering a wide range of specialist topics for the more experienced researcher and those interested in the overlap with other related specialist areas. Also included are appendices detailing gene and protein information on APP, tau, the presenilins, apolipoprotein E, and the newly cloned therapeutic target, BACE.



The name of the article	Geriatric dermatology
Authors	Norman, R.A.
Publisher info	Year: -- Publisher: Informa Healthcare



Description

Over the past few years the world's population has continued on its remarkable transition from a state of high birth and death rates to one characterized by low birth and death rates. Consequently, primary care physicians and dermatologists will see more elderly patients presenting age-related dermatological conditions. There has never been a better time for a book devoted entirely to skin care in the elderly.

Geriatric Dermatology draws together a panel of experts who provide an overview of the diagnosis and treatment of geriatric skin diseases. It begins with a general review of the aging of the world's population and the major dermatological problems that often arise in elderly patients. An added benefit is the book's coverage of geriatric skin care in nursing homes, adult congregate living, and subacute and home health settings, a subject not always found in conventional dermatology texts.

The name of the article

Aging in a Changing Society

Authors

Thorson, James

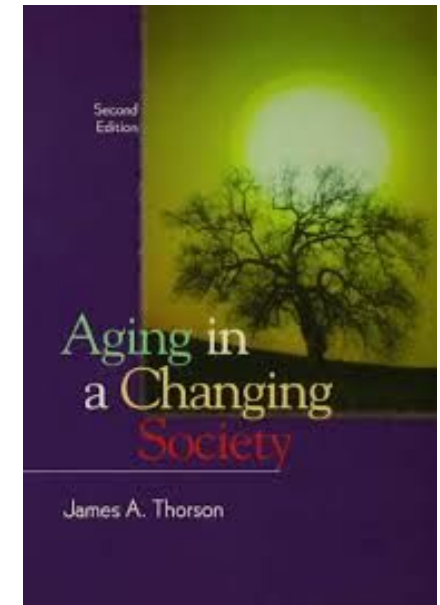
Publisher info

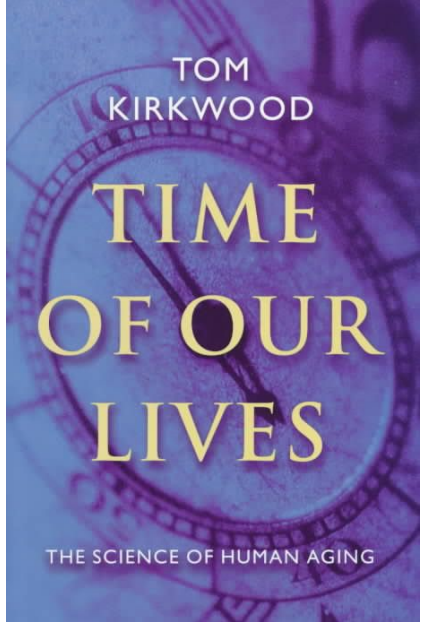
Year: --

Publisher: Routledge

Description

The field of gerontology, the study of aging, has emerged as an area of increasing importance. This book is an introduction to the multidisciplinary field of gerontology. The text, with its friendly narrative style, assumes no prior knowledge of gerontology, sociology, or psychology.



<p>The name of the article</p>	<p>Time of our lives: the science of human aging</p>	
<p>Authors</p>	<p>Kirkwood, Tom</p>	
<p>Publisher info</p>	<p>Year: -- Publisher: Oxford University Press</p>	
<p>Description</p>	<p>By the year 2050 one in five of the world's population will be 65 or older, a fact which presages profound medical, biological, philosophical, and political changes in the coming century. In Time of Our Lives, Tom Kirkwood draws on more than twenty years of research to make sense of the evolution of aging, to explain how aging occurs, and to answer fundamental questions like why women live longer than men. He shows that we age because our genes, evolving at a time when life was "nasty, brutish, and short," placed little priority on the long-term maintenance of our bodies. With such knowledge, along with new insights from genome research, we can devise ways to target the root causes of aging and of age-related diseases such as Alzheimer's and osteoporosis. He even considers the possibility that human beings will someday have greatly extended life spans or even be free from senescence altogether.</p>	

The name of the article

Cognitive Aging: A Primer

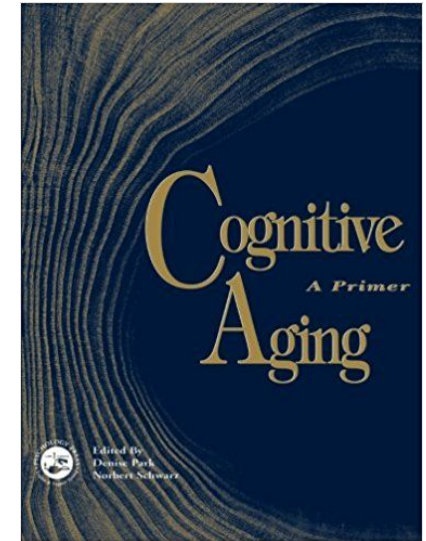
Authors

Park, Denise C. & Schwarz, Norbert

Publisher info

Year: --

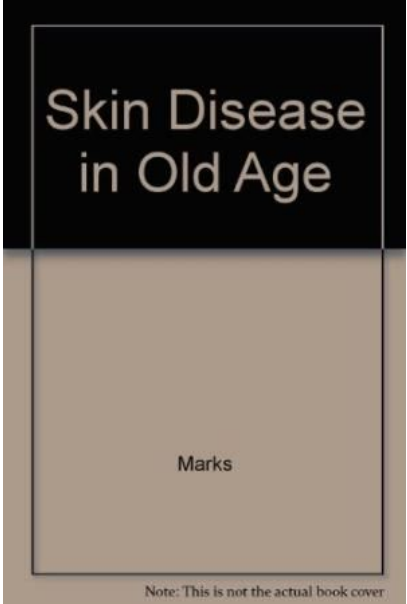
Publisher: Psychology Press



Description

As our society ages, the topic of cognitive aging is becoming increasingly important. This volume provides an accessible overview of how the cognitive system changes as a function of normal aging.

Building on the successful first edition, this volume provide an even more comprehensive coverage of the major issues affecting memory, attention, language, speech and other aspects of cognitive functioning. The essential chapters from the first edition have been thoroughly revised and updated and new chapters have been introduced which draw in neuroscience studies and more applied topics. In addition, contributors were encouraged to ensure their chapters are accessible to students studying the topic for the first time. This therefore makes the volume appealing as a textbook on senior undergraduate and graduate courses.

<p>The name of the article</p>	<p>Skin disease in old age</p>	
<p>Authors</p>	<p>Marks, Ronald</p>	
<p>Publisher info</p>	<p>Year: 1990 Publisher: Informa Healthcare</p>	
<p>Description</p>	<p>A useful source of information for dermatologists, general practitioners and geriatricians, this book may be used as a visual aid to diagnosis and contains information about environmental effects and possible underlying causes of skin diseases, such as endocrine, neoplastic and nutritional deficiencies. The book covers subjects as the aetiology, diagnosis and treatment of skin disease in the elderly population.</p>	

The name of the article

Successful Aging: Perspectives from the Behavioral Sciences

Authors

Baltes, Paul B. & Baltes, Margret M.

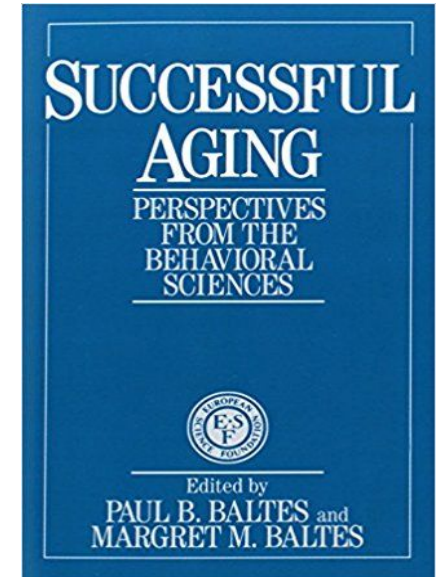
Publisher info

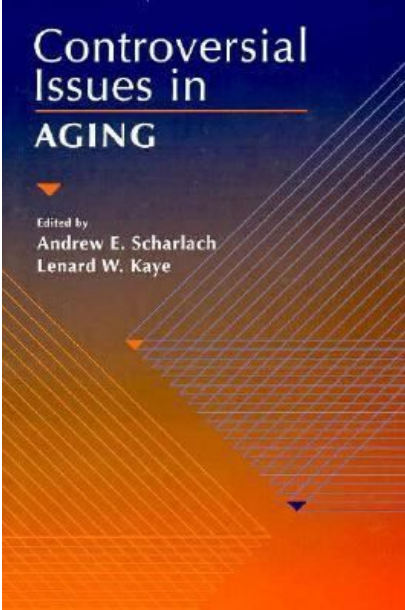
Year: --

Publisher:Cambridge University Press

Description

For a long time, research on developmental issues in the biological and social sciences has been primarily concerned with the early stages of the lifespan, such as infancy and adolescence. More and more researchers have recently turned their attention to the problems of development and aging in the later periods of life. This volume, based on papers presented by the European Network on Longitudinal Studies on Individual Development, deals with success in the aging process. From a medical or public health viewpoint, successful aging consists of optimizing life expectancy while at the same time minimizing physical, psychological, and social morbidity. Achievement of successful aging requires that the onset of infirmity, on average, increases more rapidly than average life expectancy, compressing morbidity into a shorter period. Current behavioral and social research shows physical plasticity in seniors, strong associations between lifestyle and health, increasingly healthy lifestyles on a national basis, and decreasing incidence of chronic disease.



<p>The name of the article</p>	<p>Controversial issues in Aging</p>	
<p>Authors</p>	<p>Scharlach, Andrew E. & Kaye, Lenard W.</p>	
<p>Publisher info</p>	<p>Year: 1996 Publisher: Pearson Education</p>	
<p>Description</p>	<p>Part of the Controversial Issues series, this text presents a series of clear and lively debates on current issues in gerontology, authored by leading academic authorities in the field. The text presents a broad overview of issues and questions facing the field, including areas of policy/programs, health, social services, professional and family life, and more. The debates are current and very readable; the text is “user-friendly,” and was designed to stimulate student discussion, debate, as well as critical thinking. The text is a “must” for students considering careers in the field of gerontology. The nontechnical, brief and lively format of the debates makes them accessible to all students. Issues covered include whether or not to legalize suicide; whether to reduce Social Security benefits; whether to institute means-testing for Medicare; whether affirmative action programs should be instituted for older persons; and the potential dismantling of the aging services network.</p>	

The name of the article

Current Directions in Adulthood and Aging

Authors

APS (Association for Psychological Science) & Charles, Susan T.

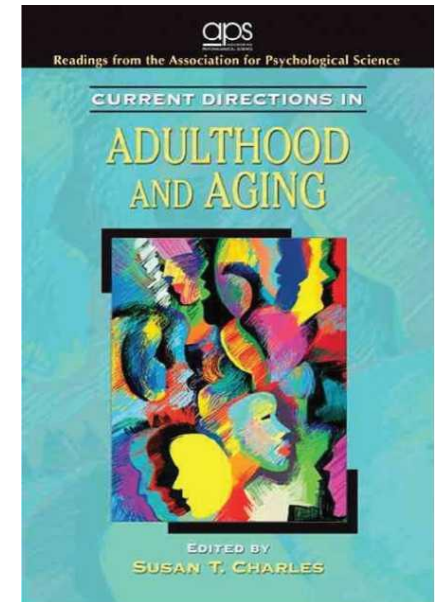
Publisher info

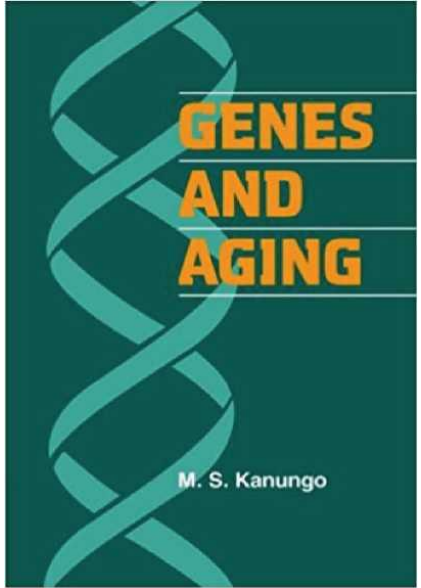
Year: 2008

Publisher: Pearson

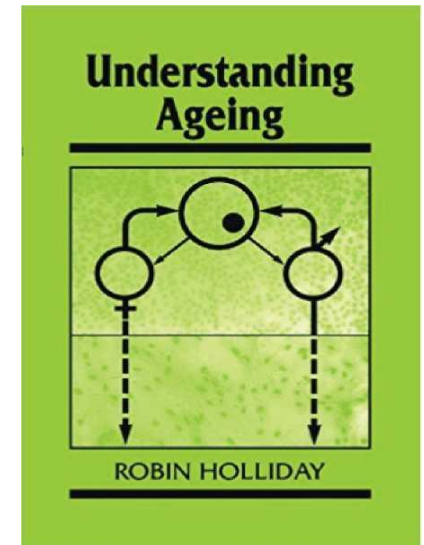
Description

This new and exciting reader includes over 25 articles that have been carefully selected for the undergraduate audience, and taken from the very accessible Current Directions in Psychological Science journal. These timely, cutting-edge articles allow instructors to bring their students real-world perspective-from a reliable source-about today's most current and pressing issues in adulthood and aging.



The name of the article	Genes and aging	
Authors	Kanungo, M.S.	
Publisher info	Year: 2004 (H) 2005 (P) Publisher: Cambridge University Press	
Description	<p>The maximum life span of multicellular organisms varies greatly: for a fruitfly it is about 30 days, for a dog about 20 years, and for a human about 100 years. Despite these differences, all animals show a similar pattern of their life spans - growth, adulthood, and aging, followed by death. The basic cause of aging in multicellular organisms (eukaryotes) lies at the level of the genes, although nutrition and various types of stresses do influence the rate and pattern of aging. This book reviews the molecular biology of the gene in relation to aging. Until about a decade ago it was not possible to probe into the types of changes that occur in eukaryotic genes, due to their enormous complexity. The use of genetic engineering techniques, however, is beginning to unravel the changes that occur in the genes as an organism ages: such as the changing expression of specific genes under normal conditions and under various types of stress, the changes in the regulatory roles of the sequences in the promotor regions of genes, conformational changes that may occur in genes during aging, and the protein factors that are involved in the aging process.</p>	

The name of the article	Understanding ageing
Authors	Holliday, Robin
Publisher info	Year: 1995 Publisher: Cambridge University Press



Description	<p>This book presents a completely novel approach to the understanding of ageing, which many believe is an unsolved problem in biology. It explains why ageing exists in animals, and reviews our understanding of it at the biological level. This includes a discussion of the origins and evolution of ageing. The book is not a review of research on ageing, but instead draws on material from a wide range of disciplines, including the very extensive biomedical information about age-related diseases in humans. Understanding Ageing argues that much research needs to be done on the cellular and molecular aspects of ageing, if the origins of these diseases are to be understood, and their prevention made possible. This thought-provoking book will appeal to all students and researchers who are interested in ageing, whether they are working in the clinical or basic research sphere.</p>
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<p>The name of the article</p>	<p>Understanding aging and diversity: theories and concepts</p>	
<p>Authors</p>	<p>Kolb, Patricia</p>	
<p>Publisher info</p>	<p>Year: 2012 Publisher: Routledge</p>	
<p>Description</p>	<p>The demographic phenomena of increased life expectancy, increasing global population of older adults, and a larger number of older people as a proportion of the total population in nations throughout the world will affect our lives and the life of each person we know. In this book, Patricia Kolb presents important sociological theories and concepts for understanding experiences of older people and their families in a rapidly changing world. She explores concepts from phenomenology, critical theory, feminist theory, life course theory and gerotranscendence theory to explain important issues in the lives of older people. This book investigates similarities and differences in aging experiences, focusing in particular on the effects of inequality. Kolb examines the relationship of ethnicity, race, gender, sexual orientation and social class to international aging experiences. This book explores the relationships between older people and social systems in different ways, and informs thinking about policy development and other strategies for enhancing the wellbeing of older adults.</p>	

UK Longevity Scientific Journals

List of Scientific Journals

1. Aging, Neuropsychology and Cognition
2. International Journal of Education and Ageing
3. Age and Ageing
4. Ageing & Society
5. Aging & Mental Health
6. Aging Health
7. Clinical Gerontologist
8. Journal of Aging, Humanities, and the Arts
9. Journal of Intergenerational Relationships
10. Journal of Religious Gerontology
11. Work, Aging and Retirement
12. Ageing Horizons
13. Alzheimer's Research & Therapy
14. Canadian Journal on Aging
15. Dementia
16. Educational Gerontology
17. Experimental Aging Research
18. Immunity & Ageing
19. International Psychogeriatrics
20. Molecular Neurodegeneration
21. Reviews in Clinical Gerontology
22. The Aging Male
23. The Journals of Gerontology, Series A: Biological Sciences
24. The Journals of Gerontology, Series B: Psychological Sciences
25. British Medical Journal

The name of the article

Aging, Neuropsychology and Cognition

Authors

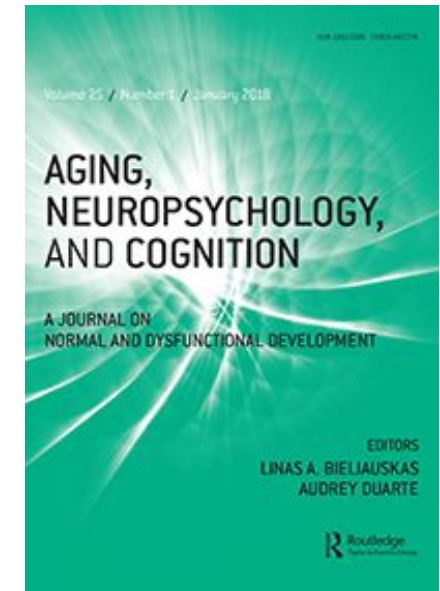
Bieliauskas, Linas A. & Sliwinski, Martin

Publisher info

First Issue/Volume: 1994
First online Issue/Volume: 1994
Publisher: Routledge
ISSN: 1382-5585
EISSN: 1744-4128
SCImago Journal Rank (2016): 0.539

Description

The growing numbers of the elderly in today's society present special challenges to the (neuro)psychologist, psychiatrist and geriatric specialist. Aging, Neuropsychology & Cognition promotes integration of theories, research findings and methods between cognitive gerontology and neuropsychology. A successful new journal addressing a field of vital importance.



The name of the article	International Journal of Education and Ageing
Authors	Percy, Keith
Publisher info	<p>First Issue/Volume: 2010 First online Issue/Volume: 2010 Publisher: Anchorprint Group Limited ISSN: 2044-5458</p>
Description	<p>There are other published journals concerned with ageing, older people and society; they sometimes publish articles on older people's learning and education. But they do not focus on learning in later life and they do not contain the unique critical blend of research and scholarship, and the consideration of their implications, which is to be found in the International Journal of Education and Ageing. They do not contain the new thinking, perspectives and challenges; the high standards of critical scholarship; the application of research to practice and policy; the interest in all disciplines and the determination to be international in both content and audience which characterise the International Journal of Education and Ageing.</p>



The name of the article

Age and Ageing

Authors

Francis, Roger

Publisher info

First Issue/Volume: 1972

First online Issue/Volume: 1972

Publisher: Oxford University Press

ISSN: 0002-0729


EISSN: 1468-2834

SCImago Journal Rank (2016): 1.333

Description

About the Journal Age and Ageing is an international journal publishing refereed original articles and commissioned reviews on geriatric medicine and gerontology. Its range includes research on human ageing and clinical, epidemiological, and psychological aspects of later life. Age and Ageing is the journal of the British Geriatrics Society, improving healthcare for older people. Age and Ageing is a leading international clinical geriatric medicine journal.

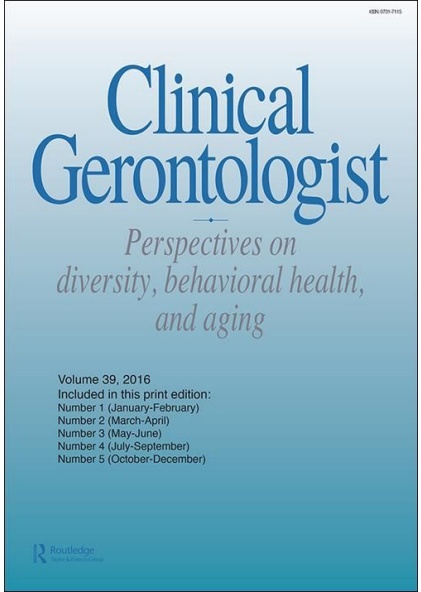


<p>The name of the article</p>	<p>Ageing & Society</p>	
<p>Authors</p>	<p>Warnes, Tony</p>	
<p>Publisher info</p>	<p>First Issue/Volume: 1981 First online Issue/Volume: 1981 Publisher: Cambridge University Press ISSN: 0144-686X EISSN: 1469-1779 SCImago Journal Rank (2016): 0.771</p>	
<p>Description</p>	<p>Ageing & Society is an interdisciplinary and international journal devoted to the understanding of human ageing and the circumstances of older people in their social and cultural contexts. It draws contributions and has readers from many academic social science disciplines, and from clinical medicine and the humanities. In addition to original articles, Ageing & Society publishes book reviews, occasional review articles and special issues. Ageing & Society uses an online submission system. The entire review process is conducted through the Manuscript Central platform, including revisions and editorial assessments.</p>	

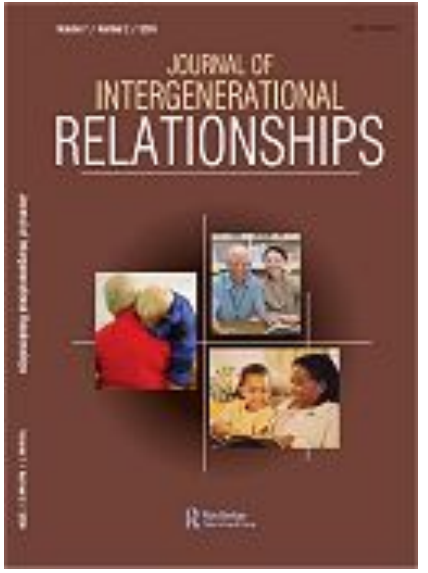
<p>The name of the article</p>	<p>Aging & Mental Health</p>	
<p>Authors</p>	<p>Orrell, Martin & Zarit, Steven</p>	
<p>Publisher info</p>	<p>First Issue/Volume: 1997 First online Issue/Volume: 1997 Publisher: Taylor and Francis Ltd. ISSN: 1360-7863 EISSN: 1364-6915 SCImago Journal Rank (2016): 0.706</p>	
<p>Description</p>	<p>Aging & Mental Health is a peer-reviewed monthly scientific journal published by Routledge covering research on the relationship between the aging process and mental health. The editors-in-chief are Martin Orrell and Steven Zarit.</p>	

The name of the article	Aging Health
Authors	Manzotti, E.
Publisher info	<p>First Issue/Volume: 1988 First online Issue/Volume: 1996 Publisher: Routledge ISSN: 1745-509X EISSN: 15526887 SCImago Journal Rank (2016): 0.166</p>
Description	<p>Journal of Aging and Health (JAH) explores the complex and dynamic relationship between gerontology and health. Peer-reviewed and published 8 times per year, scholars present views and perspectives from a wide variety of disciplines, including Allied Health, Psychology, Public Health, Social Policy and Work, Epidemiology, Health Services Research, Sociology, and Nursing. This journal is a member of the Committee on Publication Ethics (COPE).</p>



The name of the article	Clinical Gerontologist	
Authors	Gallagher-Thompson, Dolores E. & Thompson, Larry W.	
Publisher info	<p>First Issue/Volume: 1982 First online Issue/Volume: 1982 Publisher: Routledge ISSN: 1731-7115 EISSN: 1545-2301 SCImago Journal Rank (2016): 0.282</p>	
Description	<p>Clinical Gerontologist presents original research, reviews, and clinical comments relevant to the needs of behavioral health professionals and all practitioners who work with older adults. Published in cooperation with Psychologists in Long Term Care, the journal is designed for psychologists, physicians, nurses, social workers, counselors (family, pastoral, and vocational), and other health professionals who address behavioral health concerns found in later life, including:</p> <ul style="list-style-type: none"> ● adjustments to changing roles ● issues related to diversity and aging ● family caregiving ● spirituality ● cognitive and psychosocial assessment ● depression, anxiety, and PTSD ● long term care ● behavioral medicine in aging ● rehabilitation and education for older adults 	

The name of the article	Journal of Aging, Humanities, and the Arts	
Authors	Wyatt-Brown, Anne M. & Bradley, Dana Burr	
Publisher info	First Issue/Volume: 2007 First online Issue/Volume: 2007 Publisher: Routledge ISSN: 1932-5614 EISSN: 1932-5622	
Description	<p>The Journal of Aging, Humanities, & the Arts (JAHA) is the official publication of the Humanities & Arts Committee of the Gerontological Society of America. The H & A Committee and the Editorial Board of JAHA foster a dialogue between the humanities and arts and the bio-medical, psychological, behavioral, and social sciences to challenge stereotypes, further our understanding of the aging process, and provide creative approaches to the exploration of issues pertaining to aging. Such interdisciplinary inquiry can emerge in the following ways (1) Language and Communication; (2) Literary Production, Reception, and Analysis; (3) Biography, Autobiography and Memoirs; (4) Human Beliefs and Spiritual Values; (5) Art, Music and Dance Therapy with Older Adults; (6) Narrative Medicine in Interactions with Older Adults and their Families (7) Issues of Death and Dying; (8) Creativity and Aging and (9) Social Construction of Age.</p>	

The name of the article	Journal of Intergenerational Relationships	
Authors	Newman, Sally	
Publisher info	First Issue/Volume: 2003 First online Issue/Volume: 2003 Publisher: Routledge ISSN: 1535-0770 EISSN: 1535-0932 SCImago Journal Rank (2016): 0.195	
Description	<p>The Journal of Intergenerational Relationships is the forum for scholars, practitioners, policy makers, educators, and advocates to stay abreast of the latest intergenerational research, practice methods and policy initiatives. This is the only journal focusing on the intergenerational field integrating practical, theoretical, empirical, familial, and policy perspectives. Peer Review Policy: All scholarly articles in the Journal of Intergenerational Relationships have undergone a rigorous peer review based on an initial editorial screening followed by refereeing by two or more anonymous referees. All practice articles have received editorial screening and been anonymously reviewed by two Board committee members.</p>	

The name of the article

Journal of Religious Gerontology

Authors

Ellor, James W.

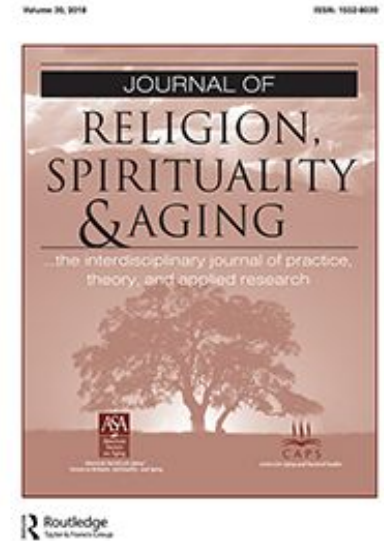
Publisher info

First Issue/Volume: 1984
First online Issue/Volume: 1991
Publisher: Routledge
ISSN: 1050-2289

Description

The Journal of Religion, Spirituality and Aging is an interdisciplinary, interfaith professional journal in which the needs, aspirations, and resources of aging constituencies come clearly into focus. Combining practical innovation and scholarly insight, the peer-reviewed journal offers timely information and probing articles on such subjects as long-term care for the aging, support systems for families of the aging, retirement, counseling, death, ethical issues, and more .

Providing a crucial balance between theory and practice, the journal informs secular professionals – administrators, counselors, nurses, physicians, recreational rehabilitative therapists, and social workers – about developments in the field of Religion, Spirituality, and Aging. The journal also serves as a resource for religious professionals, such as pastors, religious educators, chaplains, and pastoral counselors who work with aging people and their families.



The name of the article

Work, Aging and Retirement

Authors

Wang, Mo

Publisher info

First Issue/Volume: 2015
First online Issue/Volume: 2015
Publisher: Oxford University Press
ISSN: 2054-4642
EISSN: 2054-4650

Description

Work, Aging and Retirement provides a peer-reviewed forum for evidence-based, translational research on worker aging and retirement, with the goal of enhancing understanding of these phenomena. Work, Aging and Retirement reflects a broad community of professionals in the fields of psychology, sociology, economics, gerontology, business and management, and industrial labor relations. It aims to publish high-quality research that will generate interest from public policy makers, organizational decision makers, human resource professionals, and older worker advocates for the policy implications that these papers bear. Work, Aging and Retirement encourages an international perspective, publishing research and findings from various countries, regions, and entities that are governed by different socio-economic policies.



The name of the article

Ageing Horizons

Authors

Publisher info

Description

First Issue/Volume: 2004

First online Issue/Volume: 2004

Publisher: Oxford Institute of Ageing ISSN: 1746-1073 EISSN: 1746-1081

SCImago Journal Rank (2012): not (yet) indexed by SCImago Impact factor (IF):

4-year impact factor (IF):

Journal's website: <http://www.ageing.ox.ac.uk/publications/ageing-horizons>


Ageing Horizons was published between 2004 and 2010. It was a review of analysis and research on policy futures in an ageing society. It also served as a thematic resource for abstracts, news, commentary, and debate on the policy issues that are likely to arise in the medium term as a result of population ageing.

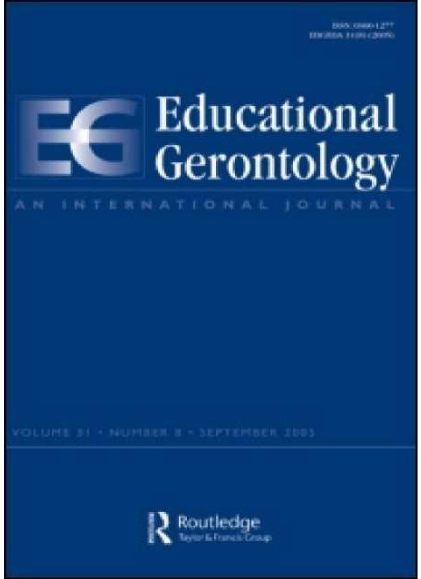


<p>The name of the article</p>	<p>Alzheimer's Research & Therapy</p>	
<p>Authors</p>	<p>Galasko, Douglas R.; Golde, Todd E. & Wilcock, Gordon K.</p>	
<p>Publisher info</p>	<p> First Issue/Volume: 2009 First online Issue/Volume: 2009 Publisher: BioMed Central ISSN: 1758-9193 EISSN: 1758-9193 SCImago Journal Rank (2016): 2.438 (2012:1.115) Impact factor (IF): 6.196 5-year impact factor (IF): Journal's website: https://alzres.biomedcentral.com </p>	
<p>Description</p>	<p>Alzheimer's Research & Therapy is the major forum for translational research into Alzheimer's disease. An international peer-reviewed journal, it publishes open access basic research with a translational focus, as well as clinical trials, research into drug discovery and development, and epidemiologic studies. The journal also provides reviews, viewpoints, commentaries, debates and reports. Although the primary focus is Alzheimer's disease, the scope encompasses translational research into other neurodegenerative diseases.</p>	





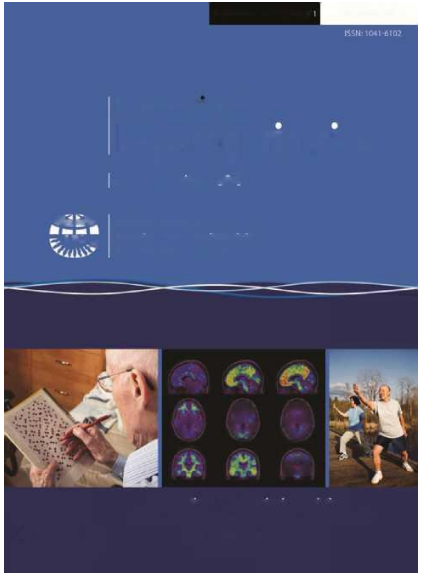
The name of the article	Canadian Journal on Aging	
Authors	Dr Paul Stolee	
Publisher info	<p>First Issue/Volume: 1982 First online Issue/Volume: 1982 Publisher: Cambridge University Press ISSN: 0714-9808 EISSN: 1710-1107 SCImago Journal Rank (2016): 0.372 5-year Impact factor (IF): 0.734 Journal's website: https://www.cambridge.org/core/journals/canadian-journal-on-aging-la-revue-canadienne-du-vieillessement</p>	
Description	<p>The Canadian Journal on Aging/La Revue canadienne du vieillissement (CJA/RCV) promotes excellence in research and disseminates the latest work of researchers in the social sciences, humanities, health and biological sciences who study the older population of Canada and other countries; informs policy debates relevant to aging through the publication of the highest quality research; seeks to improve the quality of life for Canada's older population and for older populations in other parts of the world through the publication of research that focuses on the broad range of relevant issues from income security to family relationships to service delivery and best practices.</p>	


The name of the article	Dementia	
Authors	Keady, John & Harris,Phyllis Braudy	
Publisher info	First Issue/Volume: First online Issue/Volume: Publisher: Sage ISSN: 1471-3012 EISSN: 1741-2684 SCImago Journal Rank (2016): 0.432 Impact factor (IF): 1.768 5-year Journal's website: https://us.sagepub.com/en-us/nam/journal/dementia	
Description	<p>The International Journal of Social Research and Practice has proved an exciting step forward for the field of dementia care generally, and social research specifically. Dementia acts as a major forum for social research of direct relevance to improving the quality of life and quality of care for people with dementia and their families.The Journal has proved an exciting step forward for the field of dementia care generally, and social research specifically. It acts as a major forum for social research of direct relevance to improving the quality of life and quality of care for people with dementia and their families.</p>	

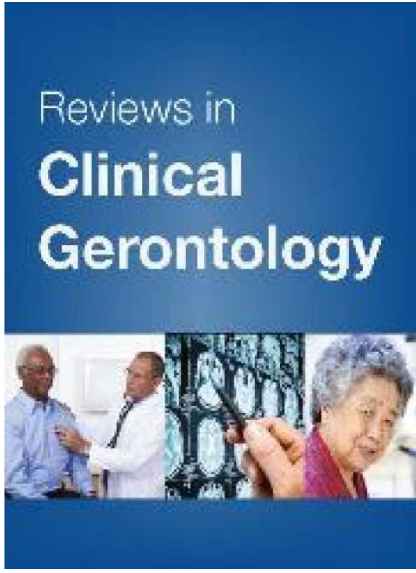
The name of the article	Educational Gerontology	
Authors	Lumsden, Barry	
Publisher info	<p>First Issue/Volume: 1976 First online Issue/Volume: 1976</p> <p>Publisher: Routledge</p> <p>ISSN: 0360-1277 EISSN: 1521-0472</p> <p>SCImago Journal Rank (2016): 0.342</p> <p>Impact factor (IF): 0.63</p> <p>Journal's website: http://www.tandfonline.com/toc/uedg20/curren</p>	
Description	<p>This well-respected journal offers up-to-date original research in the fields of gerontology, adult education, and the social and behavioral sciences. Researchers from around the world will benefit from the exchange of ideas for both the study and practice of educational gerontology. Papers published in the journal will also serve as authoritative contributions to the growing literature in this burgeoning field. Educational Gerontology is the only international journal of its kind to publish eight issues per volume year.</p>	

The name of the article	Experimental Aging Research	
Authors	Jeffrey W. Elias, Ph.D.	
Publisher info	First Issue/Volume: 1975 First online Issue/Volume: 1975 Publisher: Routledge ISSN: 0361-073X EISSN: 1096-4657 SCImago Journal Rank (2016): 0.553 Impact factor (IF): 1.345 5-year impact factor (IF): Journal's website: http://www.tandfonline.com/toc/uear20/current	
Description	<p>Experimental Aging Research is a life span developmental and aging journal dealing with research on the aging process from a psychological and psychobiological perspective. It meets the need for a scholarly journal with refereed scientific papers dealing with age differences and age changes at any point in the adult life span. Areas of major focus include experimental psychology, neuropsychology, psychobiology, work research, ergonomics, and behavioral medicine. Original research, book reviews, monographs, and papers covering special topics are published</p>	

The name of the article	Immunity & Ageing	Immunity & Ageing
Authors	Caruso, Calogero	
Publisher info	<p>First Issue/Volume: 2004 First online Issue/Volume: 2004 Publisher: BioMed Central ISSN: EISSN: 1742-4933 SCImago Journal Rank (2016): 1.108 Impact factor (IF): 2.216 5-year impact factor (IF): Journal's website: https://immunityageing.biomedcentral.com</p>	 
Description	<p>Immunity & Ageing is an Open Access, peer-reviewed, online journal that considers manuscripts on all aspects of ageing examined from an immunological point of view. During the past century, mankind has gained more years of average life expectancy than in the last 10,000 years. More than 20% of the Western population is over 60 years of age, and the proportion of those over 85 is growing six times faster than the population as a whole. Over the last few years, journals oriented towards gerontology and geriatric sciences have been accepting an increasing number of articles dealing with immunology of ageing, but a specialised journal in this area does not exist. Immunity & Ageing will be an opportunity to focus on this topic, which is emerging as one of the critical mechanisms in ageing.</p>	

The name of the article	International Psychogeriatrics	
Authors	Dilip V. Jeste	
Publisher info	<p>First Issue/Volume: 1989 First online Issue/Volume: 1989 Publisher: Cambridge Journals ISSN: 1041-6102 EISSN: 1741-203X SCImago Journal Rank (2016): 1.007 Impact factor (IF): 2.423 5-year impact factor (IF): Journal's website: https://www.cambridge.Org/core/journals/intemational-psychogeriatrics#</p>	
Description	<p>A highly respected, multidisciplinary journal, International Psychogeriatrics publishes high quality original research papers in the field of psychogeriatrics. The journal aims to be the leading peer reviewed journal dealing with all aspects of the mental health of older people throughout the world. Circulated to over 1,000 members of the International Psychogeriatric Association, published six times a year, International Psychogeriatrics also features important editorials, provocative debates, literature reviews, book reviews and letters to the editor. The journal published 2 supplements in 2009 and changed to an A4 format allowing an increase in content of around 20% in its six 224 page issues. Published for the International Psychogeriatric Association</p>	

The name of the article	Molecular Neurodegeneration	
Authors	Guojun, Bu & Huaxi, Xu	
Publisher info	<p>First Issue/Volume: 2006 First online Issue/Volume: 2006 Publisher: BioMed Centra ISSN: 1750-1326 EISSN: SCImago Journal Rank (2012): 1.999 Impact factor (IF): 6.78 5-year impact factor (IF): Journal's website: https://molecularneurodegeneration.biomedcentral.com</p>	 
Description	<p>Molecular Neurodegeneration is an open access, peer-reviewed online journal that will encompass all aspects of neurodegeneration research at the molecular and cellular levels. Neurodegenerative diseases collectively refer to neurological disorders that result from neurodegeneration and include, but are not limited to, Alzheimer's disease, Parkinson disease, Huntington disease, and prion diseases. These diseases, which are often associated with advanced aging and display varying degrees of dementia, have become a significant public health issue as humans live longer and the aging population grows larger</p>	

The name of the article	Reviews in Clinical Gerontology	
Authors	Bayer, Antony	
Publisher info	<p>First Issue/Volume: 1991 First online Issue/Volume: 1991 Publisher: Cambridge University Press ISSN: 0959-2598 EISSN: 1469-9036 SCImago Journal Rank (2016): 0.253 Impact factor (IF): 0.7 5-year impact factor (IF): Journal's website: https://www.cambridge.Org/core/journals/reviews-in-dinical-gerontology#</p>	
Description	<p>Reviews in Clinical Gerontology brings together specially commissioned international reviews on recent developments in geriatric medicine (including rehabilitation, nursing care and psychiatry of old age) and in biological, psychological and social gerontology. There is systematic coverage of the literature on a cyclical basis. All the major topics of interest are reviewed during the course of a five-year cycle. The issues build into a valuable source of reference for everyone working with elderly people.</p>	


The name of the article	The Aging Male
Authors	Lunenfeld, Bruno
Publisher info	<p>First Issue/Volume: 1998 First online Issue/Volume: 1998 Publisher: Informa Healthcare ISSN: 1368-5538 EISSN: 1473-0790 SCImago Journal Rank (2016):0.456 Impact factor (IF): 2.108 5-year impact factor (IF): 1.912 Journal's website: http://www.tandfonline.com/loi/itam20</p>
Description	<p>The Aging Male , the official journal of the International Society for the Study of the Aging Male, is a multidisciplinary publication covering all aspects of male health throughout the aging process. The Journal is a well-recognized and respected resource for anyone interested in keeping up to date with developments in this field. It is published quarterly in one volume per year.</p>



The name of the article	The Journals of Gerontology, Series A: Biological Sciences
Authors	de Cabo, Rafael & Ferrucci, Luigi
Publisher info	<p>First Issue/Volume: 1946 First online Issue/Volume: 1995 Publisher: Oxford University Press ISSN: 1079-5006 EISSN: 1758-535X SCImago Journal Rank (2016): 1.708 Impact factor (IF):3.064 5-year impact factor (IF):3.878 Journal's website: https://academic.oup.com/biomedgerontology</p>
Description	<p>Publishes articles on the biological aspects of aging in areas such as biochemistry, biodemography, cellular and molecular biology, comparative and evolutionary biology, endocrinology, exercise sciences, genetics, immunology, morphology, neuroscience, nutrition, pathology, pharmacology, physiology, vertebrate and invertebrate genetics, and biological underpinnings of late life diseases.</p>




The name of the article	The Journals of Gerontology, Series B: Psychological Sciences	
Authors	Blieszner, Rosemary & Silverstein, Merri	
Publisher info	<p>First Issue/Volume: 1946 First online Issue/Volume: 1995 Publisher: Oxford University Press ISSN: 1079-5014 EISSN: 1758-5368 SCImago Journal Rank (2016): 1.328 Impact factor (IF): 5.957 5-year impact factor (IF): 5.783 Journal's website: https://academic.oup.com/psychsocgerontology</p>	
Description	<p>Publishes articles on development in adulthood and old age that advance the psychological science of aging processes and outcomes. Articles in JG: PS have clear implications for theoretical or methodological innovation in the psychology of aging or contribute significantly to the empirical understanding of psychological processes and aging. Areas of interest include, but are not limited to, attitudes, clinical applications, cognition, education, emotion, health, human factors, interpersonal relations, neuropsychology, perception, personality, physiological psychology, social psychology, and sensation. Manuscripts reporting work that relates behavioral aging to neighboring disciplines are also appropriate. The Journal publishes three types of articles: a) reports of original research, b) brief reports of original research, c) New Directions in Aging Research-reviews of cutting-edge topics with theoretical or methodological implications. See word and page limitations below.</p>	


The name of the article	British Medical Journal	
Authors	Fiona Godlee; Kamran Abbasi; Theodora Bloom; Elizabeth Loder	
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Description	<p>The BMJ (British Medical Journal) is an international peer reviewed medical journal and a fully "online first" publication. Their mission is to lead the debate on health and to engage, inform, and stimulate doctors, researchers, and other health professionals in ways that will improve outcomes for patients. The journal aims to help doctors to make better decisions. It publishes original research articles, review and educational articles, news, letters, investigative journalism, and articles commenting on the clinical, scientific, social, political, and economic factors affecting health.</p>	


UK Longevity Non-Profit Organizations

List of UK Longevity Non-Profits

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50. Wolfson Centre for Age-Related Diseases (Wolfson CARD)

Name:	<p>Age UK</p> 
About:	<p>We believe in a world where everyone can love later life. Age UK is here to inspire, enable and support people to make the most of later life.</p> <p>We provide companionship, advice and support for millions of people facing later life alone.</p> <p>Age UK is the country's largest charity dedicated to helping everyone make the most of later life.</p> <p>The over-60s is the fastest-growing group in society and there are more of us than ever before.</p> <p>Ageing is not an illness, but it can be challenging and, at Age UK, we provide services and support at a national and local level to inspire, enable and support older people.</p> <p>We stand up and speak for all those who have reached later life, and also protect the long-term interests of future generations.</p>
Website:	<p>https://www.ageuk.org.uk/</p>
Based in:	<p>London</p>
Mission:	<p>Age UK's vision is to make the UK a great place to grow older. We do this by inspiring, supporting and enabling in a number of ways. We help millions of people to know their rights and make the best choices for later life. We put people in control of the care they receive, while sharing best practice to improve services.</p>

Name:	<h2>Agile Ageing Alliance</h2> 
About:	<p>Our population is expanding, with advancing age and long-term conditions being defining features of a volatile healthcare landscape.</p> <p>An emerging market brimming with potential, digitally enabled health & assistive care is capable of boosting quality of life for an ageing population, without the off-target side-effects traditionally associated with pharmaceutical interventions. This has led to myriad initiatives which aim to enable people to maintain their independence for as long as possible.</p> <p>Most of these projects however have been developed in isolation and could benefit from a more open and collaborative approach to maximise societal and business impact.</p>
Website:	<p>https://www.agileageing.org/</p>
Based in:	<p>N/A</p>
Mission:	<p>The convergence of game changing assistive technologies and big data analytics constitutes a golden opportunity to rethink the outlook for ageing populations and provide a much needed boost to the Silver Economy. This is the driving force behind the Agile Ageing Alliance.</p>

Name:	Alzheimer's Association 
About:	<p>As the world's leading voluntary health organization dedicated to Alzheimer's care, support and research, the Alzheimer's Association strives to improve quality of life for those facing Alzheimer's disease and other dementias. We fund critical research; provide education and resources; raise awareness; and advocate in partnership with government, private and nonprofit organizations for a solution to the global Alzheimer's epidemic.</p>
Website:	https://www.alz.org/uk/dementia-alzheimers-uk.asp
Based in:	UK & USA
Mission:	<p>The mission of the Alzheimer's Association is to eliminate Alzheimer's disease through the advancement of research; to provide and enhance care for all those affected; and to reduce the risk of dementia through the promotion of brain health.</p>

Name:

Alzheimer's Disease International (ADI)



About:

Alzheimer's Disease International (ADI) believes that the key to winning the fight against dementia lies in a unique combination of Global Solutions and local knowledge. As such, it works locally, by empowering Alzheimer associations to promote and offer care and support for people with dementia and their carers, while working globally to focus attention on dementia. Our board is composed of people from around the world, and our staff team is based in London. ADI is the international federation of Alzheimer associations around the world, in official relations with the World Health Organization. Each member is the Alzheimer association in their country who support people with dementia and their families. ADI's vision is prevention, care and inclusion today, and cure tomorrow. ADI runs the Alzheimer University, a series of practical workshops aimed at helping the staff and volunteers of Alzheimer associations build and strengthen their organisations. ADI holds an annual international conference which is the longest-running international conference on dementia. The conference is a unique multi-disciplinary event which unites people with an interest in dementia from around the world. World Alzheimer's Month, celebrated each September, with World Alzheimer's Day on September 21, is an opportunity to raise global awareness about dementia and its impact on families and the important work of our members throughout the world.

Website:


<https://www.alz.co.uk>


Based in:

London

Mission:

Our mission is to strengthen and support Alzheimer associations, to raise awareness about dementia worldwide, to make dementia a global health priority, to empower people with dementia and their care partners, and to increase investment in dementia research.

Name:	<h1>Alzheimer's Research UK</h1> 
About:	<p>Alzheimer's Research UK is the UK's leading dementia research charity, dedicated to causes, diagnosis, prevention, treatment and cure. Backed by our passionate scientists and supporters, we're challenging the way people think about dementia, uniting the big thinkers in the field and funding the innovative science that will deliver a cure.</p>
Website:	<p>https://www.alzheimersresearchuk.org</p>
Based in:	<p>UK</p>
Mission:	<p>Our mission is to bring about the first life-changing dementia treatment by 2025.</p>

Name:	<h1>Alzheimer's Society</h1> 
About:	<p>Alzheimer's Society is a United Kingdom care and research charity for people with dementia and their carers. It operates in England, Wales and Northern Ireland, while its sister charities Alzheimer Scotland and Alzheimer's Society of Ireland cover Scotland and the Republic of Ireland respectively. Despite its name, the charity does not exclusively help people with Alzheimer's disease.</p> <p>There are many types of dementia, which is an umbrella term. Dementia types include vascular dementia, dementia with Lewy bodies, frontotemporal dementia, Korsakoff's syndrome, Creutzfeldt–Jakob disease, HIV related cognitive impairment, mild cognitive impairment, and other rarer causes of dementia. It is a membership organisation, which works to improve the quality of life of people affected by dementia in England, Wales and Northern Ireland. Many of the 25,000 members have personal experience of dementia, as carers, health professionals or people with dementia themselves.</p>
Website:	<p>https://www.alzheimers.org.uk</p>
Based in:	<p>London</p>
Mission:	<ul style="list-style-type: none"> ● change the face of dementia research ● demonstrate best practice in dementia care and support ● provide the best advice and support to anyone dealing with dementia ● influence the state and society to enable those affected by dementia to live as they wish to live. <p>By pursuing these four goals together they hope to mobilise thousands of people. With them they hope to "reduce the impact of dementia on lives today and create a world without dementia tomorrow".</p>

Name:

APPG Housing and Care for Older People



About:

Housing & Care 21 supports the APPG on Housing and Care for Older People. The group highlights the importance of the role of housing alongside social care and health in providing greater choice and more effective support in later life.

The All-Party Parliamentary Group (APPG) on Housing and Care for Older People is an officially registered APPG, which was established in July 2009. It aims to highlight the importance of the role of housing alongside social care and health.

Current and future debates about support and services for older people make this APPG an important forum for agenda setting and discussion about the relationship between housing and care and the need for a comprehensive and joined up approach.

Website:

<http://www.housingandcare21.co.uk/about-us/appg-housing-and-care-for-older-people/>

Based in:

UK

Mission:

The APPG focuses on some key priorities:
Joining up housing, health and care
Encouraging control and choice
Highlighting the need for extra funding

Name:

Association for Education & Ageing (AEA)



The Association for
Education & Ageing

Promoting later life learning
through research, policy and practice

About:

Founded in 1985, the Association for Education and Ageing (AEA) is an international membership organisation, open to all. Its concern is learning in later life. Its aims are to advance knowledge, to improve practice and to contribute to the development of policy. Through AEA, professionals, volunteers, academics, researchers, tutors, policy-makers and older people work together.

The AEA believes in the value of learning in later life. It has published a refereed journal containing research evidence concerning the benefits, and has organised many events with older people, researchers and practitioners about later life learning.

The AEA has worked closely with NIACE in its Older & Bolder work and has been gratified to see in recent year how widely the concept of later life learning is now being accepted - in health and social care particularly – although hard evidence of its benefit is still patchy. The association believes that ownership for later life learning must be shared across government – at all levels – particularly as resources from Department of Health, and Department of Work and Pensions have been expended on ‘educational’ activities in the past without any real attempt to link them to other educational provision to obtain better value for money. 3

Website:

<http://www.associationforeducationandageing.org/about-us.html>


Based in:


London

Mission:

N/A

Name:	<h1>Biogerontology Research Foundation</h1>  <p>Biogerontology Research Foundation Prevent. Restore. Preserve.</p>
About:	<p>The Biogerontology Research Foundation (BGRF) is the UK's oldest longevity non-profit organization founded by leading geroscientists.</p> <p>The BGRF funds and conducts research which aims to develop biotechnological interventions to remediate the molecular and cellular deficits which accumulate with age and which underlie the ill-health of old age.</p> <p>The BGRF's Board of Trustees include British billionaire Jim Mellon, prominent longevity investors Dmitry Kaminskiy and Jim Mellon, renowned geroscientists Dr. Alex Zhavoronkov, João Pedro De Magalhães and Dr. Richard Faragher, as well as Jim Plante.</p>
Website:	<p>http://www.bg-rf.org.uk/</p>
Based in:	<p>London</p>
Mission/Research Topics:	<p>The Biogerontology Research Foundation is the UK's oldest charity dedicated to conducting research into:</p> <ul style="list-style-type: none"> ● the biology of aging ● the clinical translation of healthspan extending interventions ● championing the paradigm shift from treatment to prevention, ● conducting public outreach and education in order to help the public as well as governmental and regulatory bodies the importance of combating demographic aging by prioritizing funding for longevity research, ● The production of analytical reports on the emerging longevity industry and the diverse academic and non-profit sphere of longevity research, distilling vast and complex information into easily understandable classification frameworks in order to promote greater unity, synergy and common understanding among practitioners in the longevity industry and in academia and non-profit sectors.

Name:	British Geriatrics Society (BGS) 
About:	<p>The British Geriatrics Society (BGS) was founded in 1947 for “the relief of suffering and distress amongst the aged and infirm by the improvement of standards of medical care for such persons, the holding of meetings and the publication and distribution of the results of research”.</p> <p>Today, the BGS is a professional association of doctors practising geriatric medicine, old age psychiatrists, general practitioners, nurses, therapists, scientists and others with a particular interest in the medical care of older people and in promoting better health in old age. It has over 3,000 members worldwide and is the only society in UK offering specialist medical expertise in the wide range of health care needs of older people.</p> <p>The BGS is an advocate of equal access to health care treatment. It believes that all older people should be entitled to a comprehensive assessment, a proper diagnosis and a treatment plan, regardless of their age.</p> <p>The BGS uses the expertise of its members to inform and influence the development of health care policy in UK and to ensure the design, commissioning and delivery of age appropriate health services. The BGS works closely with other specialist medical societies and allies itself with age-related charities.</p> <p>The BGS strives to promote better understanding of the health care needs of older people. It shares examples of best practice to ensure that older people are treated with dignity and respect and that wherever possible, older people live healthy, independent lives.</p>
Website:	http://www.bgs.org.uk/mnubgsrole/about/administration/composition
Based in:	London
Mission:	N/A

Name:	<p>British Longevity Society</p> 
About:	<p>British Longevity Society (BLS), a non-profit society founded in 1992 created for people who want to live a longer, healthier life.</p> <p>The constitution of the BLS is the aim to; “further public education on issues connected with the means for counteracting the processes, causes and effects of ageing.” The BLS is independent of commercial interests and is not accountable to any profit-making industrial/commercial organization. Its medical advisor to the BLS is Dr. Marios Kyriazis MD, MSc (Gerontology), Diploma in Geriatric Medicine (Royal College of Physicians), MIBiol, CBiol.</p>
Website:	<p>http://www.thebls.org/</p>
Based in:	<p>London</p>
Mission:	<p>The British Longevity Society is entirely dependent upon public support to continue its mission of educating society about the emerging technologies and research pointing the way to healthier longer lives.</p>

Name:

British Society for Research on Ageing (BSRA)



About:

The British Society for Research on Ageing (BSRA) is a scientific society which promotes research to understand the causes and effects of the ageing process. The BSRA encourages publication and public understanding of ageing research and holds an annual scientific meeting. Many notable scientists with an interest in ageing are either past or current members of the organisation, which has exerted a marked influence on ageing research within the United Kingdom and internationally. According to the earliest rules of the British Society for Research on Ageing (1954): the society is instituted for the purpose of advancing knowledge of the causes and processes of ageing, by clinical and other observations on human beings, or by related experimental studies on living organisms. In 1956 the Annual General Meeting of the society revised the rules such that: the object of the Society shall be, through research, to increase knowledge of the processes and causes of ageing and, as indicated, of means for counteracting these both in human beings and in other organisms. Since 1979 the objectives of the society have been as follows: through research, to increase knowledge of the processes, causes and effects of ageing, and, as indicated, of means for counteracting these, both in human beings and in other organisms; to publish the results of all such research; to further public education therein. Thus, the Society seeks to improve understanding of the fundamental biology of ageing, as well as to educate the public regarding the scientific developments taking place in the field of modern gerontology. More recently the society has begun to directly fund research into the biology of ageing, including funding of £54,750 to the end of a three-year PhD studentship at the University of Liverpool's Institute of Ageing and Chronic Disease

Website:


<http://bsra.org.uk/>

Based in:

London

Mission:

N/A

Name:	<p>British Society of Gerontology (BSG)</p> 
About:	<p>The objects for which the Society is established are:</p> <p>For the furtherance and promotion of gerontology in particular: to increase, disseminate and apply knowledge of the social and behavioural aspects of ageing in human beings by means of research, teaching and education, and to support, encourage and raise standards of research, service and teaching in gerontology, and to aid researchers, teachers and practitioners in their professional work by such methods as the Society may from time to time determine.</p> <p>The care and relief of the aged.</p> <p>Research and study of the problems related to social and behavioural gerontology including: the means of relieving the infirmities and disabilities associated with ageing, and the publication of the results of research and study.</p>
Website:	<p>http://www.britishgerontology.org/</p>
Based in:	<p>Pulborough</p>
Mission:	<p>N/A</p>

Name:

Cambridge Centre for Ageing and Neuroscience



About:

Cam-CAN is a large-scale collaborative research project, launched in October 2010, with substantial funding from the Biotechnology and Biological Sciences Research Council (BBSRC). The Cam-CAN project is using epidemiological, behavioural, and neuroimaging data to understand how individuals can best retain cognitive abilities into old age.

Although the popular view of ageing is as a process of decline and decay, new scientific discoveries suggest a very different view - one in which the brain remains flexible and adaptable across the lifespan, with many cognitive abilities being preserved. A major aim of our research is to understand the nature of these brain-cognition relationships across the lifespan, and to change the perspective of ageing in the 21st century by highlighting the importance of abilities that are maintained into old age.

Website:

<http://www.cam-can.org/>

Based in:

Cambridge

Mission:

Our research takes a lifespan perspective to understanding how the mind and brain develop across the adult lifespan in order to preserve cognitive function. This research will include participants across the entire adult lifespan, aged 18 and up. Our aim is to understand how changes in the brain across the adult lifespan impact on cognitive functions like memory and attention. Our emphasis will be on determining the extent of neural flexibility and the potential for neural reorganisation to preserve cognitive functions.

Name:

Charity, Friends of the Elderly



About:

Charity, Friends of the Elderly is dedicated to providing individual care with dignity that meets your needs. We employ an informal, relaxed approach to ensure that we maintain our home from home feel, but organization always deliver our care with absolute professionalism. Their homes provide residential, dementia, nursing and respite care.

Website:


<http://www.fote.org.uk/>

Based in:

London

Mission:

N/A

Name:	<p>CASMI</p> 
About:	<p>CASMI is the Centre for the Advancement of Sustainable Medical Innovation, a partnership between Oxford University and UCL, created to develop new models for medical innovation. The centre aims to address the issues that have led to current failures in the translation of basic bioscience into affordable and widely adopted new treatments.</p> <p>CASMI is an independent centre with influential and impartial experts. They provide independent advice on public policy, influencing efficient healthcare spending and the life sciences field itself. Their work helps to shape the future of biomedical innovation.</p>
Website:	<p>http://casmi.org.uk/</p>
Based in:	<p>Oxford</p>
Mission:	<ul style="list-style-type: none"> • Combine academically rigorous research with high-impact policy work • Create a new, sustainable model of the medical innovation process to translate advances in basic research into patient benefit more quickly and effectively • Bring together multiple disciplines and stakeholders to tackle major issues such as value, regulation, adherence and the translation of advanced therapies • Advise governments and other bodies on the relevant public policy and regulatory issues to stimulate and develop the life sciences sectors • Position the patient perspective at the centre of all CASMI work

Name:

Centre for Better Ageing



About:

We are the Centre for Ageing Better, an independent charitable foundation. We want a society where everyone enjoys a good later life.

We believe that more people living longer represents a huge opportunity for society. But changes are needed so more people enjoy good health, are financially secure, are socially connected, and have a purpose in later life.

We bring about change for people in later life today and for future generations. Practical solutions, research about what works best, and people's own insight are all sources that we draw on to help make this change. We share this information and support others to act on it. We also try out new approaches to improving later lives.

Website:

<https://www.ageing-better.org.uk/>

Based in:

London

Mission:

Our mission is to bring about change to improve later lives, bring fresh thinking to the challenges and opportunities that society faces as more people live longer, and to develop, share and apply evidence to help people age better.

The potential is there for most of us to live for longer in good health, to have financial security and to be connected with others. Realising this opportunity, however, needs a radical shift both in the way we think about our lives and how society responds to the opportunities and challenges of an ageing population.

Name:

Centre for Integrated Systems Biology of Ageing and Nutrition (CISBAN)



About:

CISBAN is a multidisciplinary research centre within Newcastle University. It is particularly closely associated with the Institute for Ageing and Health, with which it shares buildings on the Campus for Ageing and Vitality. Its staff members come mainly from the Faculty of Medical Sciences, the School of Computing Science and the School of Mathematics and Statistics.

Their research aims to develop an understanding of the biology of ageing and ageing-related diseases using a systems approach. The way nutrients are used by the body and what nutrients are consumed have been implicated as major influences on longevity.

However, there are multiple causes and mechanisms of ageing. Each mechanism may make only a modest contribution to the whole. By taking a systems-wide approach, CISBAN seeks to capture the whole picture of what drives the ageing process, not simply a limited view of the contributing factors.

In addition to traditional and high throughput laboratory techniques, CISBAN uses a number of modelling and software systems. Very large amounts of data are generated through a range of experimental studies and analysed in silico. This process provides a highly dynamic cycle of interaction between theoretical and experimental activity.

Website:


<http://www.ncl.ac.uk/cisban/>


Based in:

Newcastle upon Tyne


Research Topics:


- Cell senescence
- Dietary restriction
- Modelling
- Software development (e.g.: Saint, SyMBA)
- Other projects (e.g.: Oxidative stress and telomerase in stem cells)

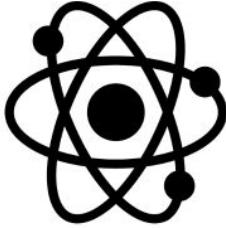
Name:	<h2 style="margin: 0;">Centre for Health and Human Performance</h2> 
About:	<p>The Centre for Health and Human Performance (CHHP) at 76 Harley Street began as a new concept in 2007 as a new concept in fully integrated specialist services directly accessible to anyone. All under one roof, our centre combines the very latest in Specialist Medicine, Human Performance, Sport and Exercise Medicine, Physiotherapy, Nutrition and Sport Science.</p> <p>In early 2013, after a 3000 square foot expansion we were able to dramatically increase our offering and bring in new and innovative equipment and services to match our Consulting expertise. Unlike many practices, we not only work as individuals in our fields of expertise, but we combine our knowledge, working together as a 'multi-disciplinary team'.</p> <p>You don't have to be an Elite athlete to access our services – the Centre is open to everyone who wants to improve their health, no matter what stage you are at.</p> <p>Please get in touch to see how we can help you achieve your health goals.</p>
Website:	<p>www.chhp.com</p>
Based in:	<p>London, United Kingdom</p>
Research Topics:	<p>N/A</p>


Name:	<h1>Centre for Policy on Ageing (CPA)</h1> 
About:	<p>The Centre for Policy on Ageing, established in 1947 by the Nuffield Foundation, has a long and distinguished record as an independent charity promoting the interests of older people through research, policy analysis and the dissemination of information.</p> <p>The centre aims to raise awareness of issues around all aspects of ageing and to support good practice. CPA sustains a network of learning around ageing.</p> <p>An important and unique aspect of the Centre's work is to act as a hub to encourage the creative exchange of thinking and information on ageing issues. A key element of this work is making knowledge on ageing issues widely accessible to share learning and underpin policy initiatives to support older people. CPA collaborates with national and local government, practitioners, the academic community, Voluntary groups and older people to sustain a network of learning around ageing.</p> <p>The Centre works in partnership to influence policy and encourage debate on issues affecting older people. It is engaged with many statutory and voluntary groups concerned with older people and contributes to advisory groups, expert working parties and forums on a diverse array of issues. CPA brings together people from different backgrounds to discuss topical issues in small and informal settings -the involvement of older people in influencing policy development is one of the Centre's primary objectives.</p>
Website:	<p>http://www.cpa.org.uk/index.html</p>
Based in:	<p>London</p>
Research Topics:	<ul style="list-style-type: none"> • Health and social services • Residential and community care • Religious belief • Living arrangements • Transport • Citizenship and leisure activities

Name:	<p>Centre for Research on Ageing and Gender (CRAG)</p> 
About:	<p>The Centre for Research on Ageing and Gender (CRAG) brings together social scientific expertise to conduct policy relevant research on gender and ageing and their intersection with other forms of social division, identity and (in)equality. CRAG focuses specifically on the intersections between gender and ageing, in addition to other aspects of social division, identity and inequality, such as sexuality, social class and ethnicity. The principal aim is to advance understanding of how gender influences the experience of ageing, and how ageing influences gender roles and relationships.</p>
Website:	<p>https://www.surrey.ac.uk/sociology/research/researchcentres/crag/</p>
Based in:	<p>Guildford</p>
Research Topics:	<p>Undertaking research on gender and ageing. CRAG members have expertise in a range of research methodologies, including qualitative research, evaluation research, and secondary analysis of large national data sets:</p> <ul style="list-style-type: none"> • Collaborating on interdisciplinary projects with psychologists, nutritionists, economists, biomedical scientists, and health specialists • Taking an holistic approach, which emphasises the interconnections between health, income and material resources, and social roles and relationships, and how these vary according to gender difference and diversity • Adopting a life course approach, which links socio-economic position, roles and relationships in later life to the earlier biographies and intersectionality, which addresses multiple axes of inequality, power and privilege • Encouraging scientific exchange through honorary visiting research positions for international scholars. In Spring 2015 CRAG was delighted to host Professor Mark Hughes, Southern Cross University, Australia • Providing opportunities for doctoral research students in a stimulating research environment • Collaborating with user groups, activists and advocates concerned with the well-being of all older people • Organising and participating in conferences, seminars and workshops which disseminate research findings to the academic community, professional groups and wider publics • Developing a media profile for exchange and dissemination of information and research findings.

Name:	<h1>Centre for Social Gerontology</h1> 
About:	<p>The centre works on the social analysis of ageing. As critical gerontologists, they view ageing as a life-long process shaped by a wide range of social factors. Their mission is to conduct research that is at the forefront of ageing studies, and to translate our findings into policies and practices that improve the lives of older people. In doing so, they seek to challenge traditional notions of ageing as problematic and burdensome, and to further understanding of the psycho-social and cultural dimensions of ageing.</p> <p>Members of the Centre for Social Gerontology are drawn from a range of disciplines, Schools and Research Institutes across the University. The Centre's work is also supported by external colleagues with backgrounds in academia, practice and policy.</p>
Website:	<p>https://www.keele.ac.uk/csg/</p>
Based in:	<p>Keele</p>
Research Topics:	<ul style="list-style-type: none"> • Family and kinship • Inter-generational relationships • Women and ageing • Social exclusion and inclusion • The social policy of later life • Making Sense of History, Biography, and Health • Ageing, drama and creativity • Cultural value • Late Life Creativity and the 'new old age' • Theatre as a Pathway to Healthy Ageing • Ageing without Children • Longitudinal study of Ageing in a Retirement Community (LARC)

Name:	<h2 style="margin: 0;">Clinical Ageing Research Unit (CARU)</h2> 
About:	<p>The Clinical Ageing Research Unit (CARU) is a £5.5 million clinical research facility funded by the Wellcome Trust and Wolfson Foundation. They opened in September 2008 and are located on the University's Campus for Ageing and Vitality. Their primary aim is to facilitate the development of early assessment and intervention strategies targeted at age-associated degenerative conditions.</p> <p>They provide a high quality, patient-friendly environment for phase II-IV clinical studies in the older patient. They employ experienced research nurses with specific training in commonly used, relevant assessment instruments.</p> <p>Clinical trials are supported by a high quality research infrastructure, embedded within the joint Acute Trust-University research system, with a study coordinator and data manager located on site.</p> <p>The Newcastle upon Tyne Hospitals NHS Foundation Trust and Newcastle University were jointly awarded the NIHR Newcastle Biomedical Research Centre (BRC) status by the National Institute for Health Research. The NIHR Newcastle Biomedical Research Centre aims to improve the lives of the growing number of older people through translational research into ageing syndromes and long-term conditions. Research themes comprise dementia, liver disease, musculoskeletal Disease, neuromuscular disease, skin and oral disease.</p>
Website:	<p>http://www.ncl.ac.uk/caru/</p>
Based in:	<p>Newcastle upon Tyne</p>
Research Topics:	<ul style="list-style-type: none"> • Stroke and cardiovascular ageing • Musculoskeletal disease • Visual failure • Type 2 Diabetes • Liver disease • Mitochondrial disease

Name:	<h1>Collider Health</h1> 
About:	<p>Collider Health is a boutique consultancy specialising in health innovation. We are here to work with teams and connect people together to think and act differently. We work with organisations of all shapes and sizes who are looking for fresh thinking and action to change entrenched attitudes. The pace of innovation needs to keep up with today's relentless quest for better health solutions at lower cost. Companies need to be more agile and evolve business models to avoid being left behind or becoming extinct. Innovators across the spectrum of wellcare and sickcare, in large and small organisations, need support to connect ideas with money and collaborate better together.</p>
Website:	<p>https://www.colliderhealth.com/</p>
Based in:	<p>London</p>
Mission:	<p>Colliding forces are changing the future of health exponentially, with technology and the growing ageing demographic in particular driving mega trends. Blockchain technology and artificial intelligence will change how we work and create. Citizens are taking more responsibility for their health and the baby boomers will disrupt the status quo with their power. Health and wealth are inexorably linked to the notion of a better life. The combustion of technology and awakening of emerging markets will lead to innovation leapfrogging the 'developed' world.</p>

Name:	<h1>Contact the Elderly</h1> 
About:	<p>Contact the Elderly is the only national charity solely dedicated to tackling loneliness and social isolation among older people through face to face contact.</p> <p>Supported by a network of volunteers, the charity organises monthly Sunday afternoon tea parties for small groups of older people, aged 75 and over, who live alone. Offering a regular and vital friendship link every month.</p> <p>Each older person is collected from their home by a volunteer driver and taken to a volunteer host's home for the afternoon. The group is warmly welcomed by a different host each month, but the drivers remain the same which means that over the months and years, acquaintances turn into friends and loneliness is replaced by companionship.</p>
Website:	<p>https://www.contact-the-elderly.org.uk</p>
Based in:	<p>London</p>
Mission:	<p>N/A</p>

Name:

Dementia Research Centre (DRC)



About:

The UCL Dementia Research Centre is a hub for clinical research into various forms of dementia. Their work focuses on identifying and understanding the disease processes that cause dementia, the factors that influence these disease processes, and how best to support people with dementia and their families. In addition to the research, they also provide a cognitive disorders clinic within the National Hospital for Neurology and Neurosurgery.

Their non-drug studies involve several different kinds of assessment. These often include questionnaires; detailed psychology tests looking at memory, but also often language and other cognitive functions; MRI scanning of the brain; and sometimes other tests such as measurement of eye movements, pupil reactions and muscle activity, or donation of blood, urine or spinal fluid. In addition to memory we are particularly trying to understand other kinds of complex brain functions that can be affected in dementia; these include aspects of perception, feeling, spatial navigation, emotion and social awareness. The studies have been designed to help us address these aspects.

Website:

<http://www.ucl.ac.uk/drc/>


Based in:


London


Research Topics:


- Familial Alzheimer's disease
- Frontotemporal dementia
- Posterior cortical atrophy
- Auditory information processing in dementia
- Chemosensory processing in dementia


Name:	<h1>Digital Health and Care Alliance</h1> 
About:	<p>DHACA is a non-profit sector-led organisation that furthers the cause of digital health and care systems in UK and Europe, championing scalability and interoperability.</p> <p>Originally known as “i3i” under the i-focus dallas project, DHACA is now an independent membership-led body of statutory and private service providers, manufacturers, software developers, consumer representative bodies, regulatory bodies, trade bodies and others in UK who want to create an opportunity to develop large-scale, collaborative business models through the promotion of open standards, collaborative architectures, and interoperability.</p>
Website:	<p>https://dhaca.org.uk/</p>
Based in:	<p>N/A</p>
Mission:	<p>The DHACA programme is under development and is looking at how to broaden its priorities beyond the needs and lifetime of dallas. These priorities will shape the DHACA programme following incorporation as an independent organisation and this is the point that a formal, subscription based membership structure will be launched. It is likely that DHACA activity will focus on:</p> <ul style="list-style-type: none"> ● Supporting demand-side approaches to digital health and care, by collating and recommending common requirements specifications for procurement purposes. ● Shaping industry’s approach to interoperability in the assisted living market and supporting the move towards large-scale business models. ● Creating a DHACA kitemark to signify interoperability and to grow market awareness. ● Providing DHACA members with knowledge, support and partnership opportunities to exploit fully the opportunities arising in this dynamic and growing market.

Name:	<h1>Digital Health and Care Institute</h1> 
About:	<p>The Digital Health & Care Institute is hosted by the University of Strathclyde and works in partnership with academia, health and social care, industry and the Third Sector amongst others. We are uniquely placed in Scotland's digital health and care community. Our networks, reach and capabilities are able bring the right people together and provide them with the means to identify, design, evaluate and invest in new solutions to the country's priority health and care challenges.</p> <p>Our work with partners aims to reduce the pressures on health and care services while also improving the quality of life of Scotland's people in both urban and rural communities.</p>
Website:	<p>http://www.dhi-scotland.com/</p>
Based in:	<p>Glasgow</p>
Mission:	<p>Our vision is that innovation in digital health and care will help Scotland's people to live longer, healthier lives and create new jobs for the economy.</p>

Name:	<h1>Digital Health.London</h1> 
About:	<p>DigitalHealth.London is a collaborative programme aiming to speed up the development and scaling of digital innovations across health and care, and pioneer their adoption by the NHS. We match innovators with NHS demand, and support them to navigate the UK health environment.</p> <p>The collaboration is delivered by MedCity, UCLPartners, Imperial College Health Partners, and the Health Innovation Network. It is supported by NHS England (London) and the Mayor's Office.</p>
Website:	<p>https://digitalhealth.london/</p>
Based in:	<p>London</p>
Mission:	<ul style="list-style-type: none"> ● We support the NHS to find digital solutions to solve problems relating to the delivery of care. ● We build the capability of innovators to navigate the NHS and innovation pathway, in order to gain market access. ● We build London's digital health ecosystem to speed up the adoption and commission of digital innovations. ● We build the capability of health and care staff to support and lead digital health enabled transformation in the NHS.

Name:	<p>European Parkinson's Disease Association (EPDA)</p> 
About:	<p>The European Parkinson's Disease Association (EPDA) is the only European Parkinson's umbrella organisation. We have been championing and working with the global Parkinson's community for 25 years. As the leading voice for Parkinson's in Europe, we provide information and resources to all Parkinson's stakeholders, raise awareness of the disease's complexities and impact, and advocate for concrete policy change that benefits the Parkinson's community. Our vision is to enable all people with Parkinson's to live a full life, while supporting the search for a cure.</p>
Website:	<p>http://www.epda.eu.com</p>
Based in:	<p>Kent</p>
Mission:	<ul style="list-style-type: none"> ● To advocate for people with Parkinson's and their families to get the right information at the right time throughout their Parkinson's journey. ● To strive for healthcare systems where people with Parkinson's receive early and appropriate treatment and individualised care. ● To raise awareness of the complexities of Parkinson's and the impact it has on people's quality of life. ● To support the global Parkinson's community in the search for a cure.

Name:	<h1>Health Foundry</h1> 
About:	<p>Health Foundry is a collaborative workspace in central London that aims to improve health and wellbeing by bringing together a wide range of people, start-ups and organisations and supporting them to create scalable digital health solutions. Powered by Guy's & St Thomas' Charity the Health Foundry opened in September 2016 and currently hosts over 100 members working in digital health.</p>
Website:	<p>http://www.healthfoundry.org/</p>
Based in:	<p>London</p>
Mission:	<p>Our mission is to support and accelerate digital innovation in healthcare.</p> <p>We provide a supportive environment for digital health start-ups including a collaborative workspace, a growing community of 150+ members within the health and digital tech sectors, and a team which facilitates connections with actors across the healthcare system.</p>

Name:	<h1>Help Age International</h1> 
About:	<p>HelpAge International is a global network of organisations promoting the right of all older people to lead dignified, healthy and secure lives.</p> <p>We have a strong, value-based position which puts the experience of older women and men at the centre of our work.</p> <p>Our vision is a world in which all older people can lead dignified, healthy and secure lives.</p> <p>Our role is to work with older women and men in low and middle-income countries for better services and policies, and for changes in the behaviours and attitudes of individuals and societies towards old age.</p> <p>The world we want is one where every older woman and man, everywhere, can say:</p> <ul style="list-style-type: none"> ● "I have the income I need" ● "I enjoy the best possible health and quality of life" ● "I am safe and secure, free from discrimination and abuse" ● "My voice is heard"
Website:	<p>http://www.helpage.org/</p>
Based in:	<p>London</p>
Mission:	<p>Our mission is to promote the wellbeing and inclusion of older women and men, and reduce poverty and discrimination in later life.</p>

Name:

Institute of Ageing and Chronic Disease Research



About:

The Institute of Ageing and Chronic Disease is using world-class research to improve the quality of life of millions of people on an international scale.

They want to understand the mechanisms of ageing - from the cellular to the muscular skeletal - to find the ways to delay its onset, and to mitigate its effects. Understanding how and why aging happens leads to an understanding of how to intervene. They are finding new insights into musculoskeletal biology and eye and vision sciences, as well as examining functions like movement, metabolism and sight.

They do that in the laboratory and at the bedside, looking at the impact of lifestyle and patient behaviour, as well bioscience and epidemiology, finding the risk factors which can cause disease, and then finding better prevention measures and methods of care.

Their research translates into real benefits for people and animals of all ages - from unique approaches to prevent muscle wasting in intensive care patients, a retina scan to detect cerebral malaria in African children, and exercise and nutritional regimes that can prevent obesity and morbidity. They are also making strides in veterinary medicine, and investigating rare diseases like alkaptonuria, which causes severe early onset osteoarthritis.

And they don't work alone. They have newly-created facilities in the University of Liverpool's William Henry Duncan Building, work closely with other exceptional university teams such as the School of Veterinary Science and its Leahurst animal hospital, and their global partners include the Wellcome Trust, UK Research Councils, NIH (USA), Unilever and GSK.

Website:

<https://www.liverpool.ac.uk/ageing-and-chronic-disease/>


Based in:

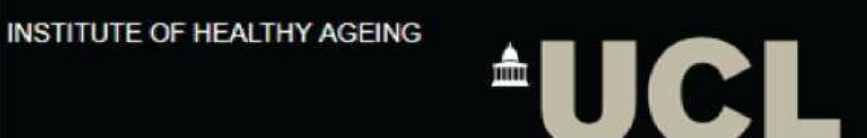
Liverpool


Research Topics:


- Musculoskeletal biology
- Eye and vision sciences
- Obesity and endocrinology

Name:	<p>Imperial White City I-HUB</p> <p>Imperial College London White City Incubator</p>
About:	<p>The Incubator is based at Imperial College London's White City Campus, an ambitious development in West London. Imperial is consistently ranked as one of the best universities in the world, appearing in the top ten of the QS World University Rankings for 2016.</p> <p>The Incubator is managed by Imperial White City Incubator Limited, with Imperial Innovations Group plc acting as service provider.</p> <p>Early-stage businesses can take advantage of being in close proximity to eminent scientists and experts in technology. The Incubator's central location in London offers easy access to customers, investors, commercial partners and consultants. Incubation support is offered by Imperial Innovations.</p>
Website:	<p>https://www.imperialincubator.com/</p>
Based in:	<p>London</p>
Mission:	<ul style="list-style-type: none"> ● State of the art facilities serviced to a high standard ● Office and laboratory space suitable for technology and research focused start-ups and early-stage companies ● Incubation support with services managed by Imperial Innovations ● Access to a range of events, networking and education programmes to support business growth ● A preferred supplier network providing discounted services to Incubator companies ● A range of leases to suit your business - including virtual memberships.

Name:	<h1>Independent Age</h1> 
About:	<p>Whatever happens as we get older, we all want to remain independent and live life on our own terms. That's why, as well as offering regular friendly contact and a strong campaigning voice, Independent Age provides clear, free and impartial advice on the issues that matter: care and support, money and benefits, health and mobility. A charity founded over 150 years ago, we're independent so you can be.</p> <p>We give free, confidential advice over the telephone for older people, their families and carers on issues such as getting help at home, adaptations, care assessments, paying for care, staying in touch with other people and welfare benefits.</p> <p>We also produce free guides and factsheets which are full of information to help you boost your income, find the care you need, remain independent, choose the right place to live, stay connected with others, and more.</p>
Website:	<p>https://www.independentage.org/</p>
Based in:	<p>London</p>
Mission:	<p>We believe older people are entitled to a fair deal. We use the knowledge and insight gained from our frontline services to challenge poor care and campaign for a fair deal for older people – a reasonable standard of living, fair access to information and an opportunity to contribute to their communities.</p>

Name:	Institute of Healthy Ageing (IHA)	
About:	<p>The Institute of Healthy Ageing is an interdisciplinary centre of excellence for research on the biology of ageing and ageing-related diseases. The biological process of ageing contributes to increased risk of a wide range of diseases, from neurodegenerative diseases (e.g. Alzheimer’s and Parkinson’s disease) and cancer to cardiovascular disease (causing heart attack and stroke) and age-related macular degeneration (causing blindness in the elderly). Their primary purpose is to bring together researchers working on the basic biology of ageing (biogerontology) with those working to understand the causes of ageing-related disease. By merging the two, they aim to develop a new translational biogerontology using the ageing process as a point of intervention to protect against the diseases of old age. Their goal is to improve the health and quality of life for older people.</p> <p>The work of the Institute of Healthy Ageing is pursuing these ends by:</p> <ul style="list-style-type: none"> • Conducting world class research on the biology of ageing and ageing-related disease • Increasing capacity in research on the biology of ageing by training new researchers and nurturing the work of younger principal investigators • Teaching about the biology of ageing at undergraduate and postgraduate levels. 	
Website:	http://www.ucl.ac.uk/iha/	
Based in:	London	
Research Topics:	<ul style="list-style-type: none"> • Genes and mechanisms that determine the rate of ageing • Insulin/IGF-like signalling pathway, dietary restriction and resistance to stress • Sex differences in the biology of ageing • Evolutionary conservation of mechanisms of ageing • Bioethical implications of ageing research 	

Name:	International Longevity Centre 
About:	<p>The International Longevity Centre – UK (ILC-UK) is a futures organisation focussed on some of the biggest challenges facing Government and society in the context of demographic change. We ask difficult questions and present new solutions to the challenges and opportunities of ageing. We undertake research and policy analysis and create a forum for debate and action.</p> <p>We also host an annual Future of Ageing Conference to assemble representatives from Government, business, academia and civil society to discuss how the UK can meet the challenges and the opportunities of a rapidly ageing society. For more information, please click here.</p> <p>Much of our work is directed at the highest levels of Government and the civil service, both in London and Brussels. We have a reputation as a respected think tank which works, often with key partners, to inform important decision-making processes.</p>
Website:	http://www.ilcuk.org.uk/index.php/home
Based in:	London
Mission:	Our policy remit is broad, and covers everything from pensions and financial planning, to health and social care, housing design, and age discrimination. We work primarily with central government, but also actively build relationships with local government, the private sector and relevant professional and academic associations.

Name:	<h1>Kingston University</h1> 
About:	<p>A vibrant, modern, diverse and supportive university based across four campuses, we offer people from all backgrounds and countries (150 at the last count) the opportunity to make a difference – not only to their own lives, but also to the world around them.</p> <p>Choose from a wide choice of subjects, with great lecturers, cutting-edge facilities and an emphasis on employment skills. Gain workplace skills and placements in top companies, learn from and network with industry experts, and develop your creative and entrepreneurial spirit – Kingston University is consistently one of the top higher education institutions in UK for producing graduate start-up companies.</p>
Website:	<p>http://www.kingston.ac.uk/</p>
Based in:	<p>London</p>
Mission:	<p>Kingston University is passionate about inspiring people and transforming lives. Learning, enquiry, professional practice, enriching lives, and respect for individuals, communities and our environment are at the heart of the University.</p>

Name:

Knowledge Transfer Network



About:

KTN links new ideas and opportunities with expertise, markets and finance through our network of businesses, universities, funders and investors. From agri-food to autonomous systems and from energy to design, KTN combines in-depth knowledge in all sectors with the ability to cross boundaries. We are Innovate UK's network partner. Connecting with KTN can lead to potential collaborations, horizon-expanding events, bespoke support and innovation insights relevant to your needs. We also work with a variety of other partners to contribute to UK growth through innovation.

Website:


<https://www.ktn-uk.co.uk/>

Based in:

London

Mission:

From agri-food to autonomous systems and from energy to design, KTN combines deep knowledge in all sectors with the ability to cross boundaries. We help business to strengthen the economy and improve people's lives by capturing maximum value from innovative ideas, scientific research and creativity.

Name:	<h1 style="margin: 0;">Manchester Institute for Collaborative Research on Ageing (MICRA)</h1> <div style="text-align: right; margin-top: 10px;">  <p style="margin: 0;">The University of Manchester Institute for Collaborative Research on Ageing</p> </div>
About:	<p>MICRA supports a community of over 100 active academics, bringing together international experts and leading researchers working across the field of ageing. Over 60 research projects and programmes span the Faculties of Humanities; Biology, Medicine and Health; and Science and Engineering. Ageing research is a strategic priority for The University of Manchester, as part of its commitment to social, economic and cultural impact. Founded in 2010, MICRA is recognised as a leading international centre for research on ageing. Its researchers address fundamental research questions about ageing and society through collaborative research, with funders for ageing research including the European Union, UK Research Councils, Government, the Big Lottery, industry, NGOs and the charity sector. Influencing policy, practice and debate. MICRA is situated in the heart of Manchester, the UK's first city to achieve World Health Organization age-friendly status. We engage critically with stakeholders and policy makers at global, national, regional, local and community levels to deliver research with demonstrable policy impact.</p> <p>It aim to embed contributions from older people and stakeholders into all stages of research, ensuring that our work has meaning and direct societal relevance. MICRA is part of the Greater Manchester Ageing Hub, tasked with bringing together plans to support local older people. A range of key policy actors from across Manchester and the UK participate as hub partners.</p>
Website:	<p>http://www.micra.manchester.ac.uk/connect/events/</p>
Based in:	<p>Manchester</p>
Research Topics:	<ul style="list-style-type: none"> • Biology of ageing and lifespan • Engineering, environment and technology • Frailty, cognition and dementia • Inequalities, health and well-being • Later life work, retirement and pensions • Physical decline and tissue regeneration • Public policy and care provision • Social and cultural change and later life

Name:

Max Planck UCL Centre for Computational Psychiatry and Ageing Research



About:

The Max Planck UCL Centre for Computational Psychiatry and Ageing Research is dedicated to studying the causes of psychiatric disorders as well as the causes of individual differences in cognitive development, with an emphasis on adulthood and old age.

Website:

<https://www.mps-ucl-centre.mpg.de/en>

Based in:

London

Research Topics:

- Activities directed at fostering research interactions, including an annual joint retreat and a visiting fellowship program for scientists at all levels;
- Funding for two interrelated lines of research within the collaborative research program, one focusing on decision-making in psychopathology and the other on individual differences in cognitive aging
- Joint graduate training that consists of an exchange program, and a summer school.
- Studying the causes of psychiatric disorders.
- Studying the causes of individual differences in cognitive development, with an emphasis on adulthood and old age.
- Computational models of differences and changes in brain-behavior relations are the Centre's major theoretical tool.
- Provide information on how cognitive functioning can be maintained into old age and on how psychiatric disorders can be better recognized and treated more efficiently.

Name:

Medawar Centre for Healthy Ageing Research



About:

The University has a longstanding interest in ageing that began when Peter Medawar was the Mason Professor of Zoology in the late 1940s. Medawar is probably best known for his work on immune tolerance, for which he received a Nobel prize, but he also developed one of the key theories relating to the evolution of ageing - the Mutation Accumulation Theory of Ageing.

In the last decade ageing has become a growing research interest at the University. To reflect the importance of ageing research at Birmingham, the University has set up the Centre for Healthy Ageing Research and is making significant new appointments in 2011 at senior level in Stem Cells and Ageing research to support the work of the centre.

We are an ageing population, with current demographic trends indicating that 1 in 5 adults in UK will be aged over 65 by the year 2020.

Whilst this is a cause for celebration, there is also evidence that healthspan (the time spent in good health) is not keeping pace with the increases in average lifespan, with significant consequences for quality of life in old age and for health and social services provision. Thus medical advances have ensured that a greater proportion of the population make it through to the third age of man, but they have made less impact upon the quality of life in old age. Age is the most important risk factor for many disabling human diseases and on average men will still be unwell for the last 6 years of their lives and women for the last 11 years.

Website:


<https://www.birmingham.ac.uk/research/activity/mds/centres/healthy-ageing/index.aspx>

Based in:

Birmingham

Research Topics:

- Aging and the cardiovascular system
- Aging and the immune system
- Aging in nematodes
- Ensuring good health in old age
- Aging brain

Name:	<h1>New Dynamics of Ageing</h1> 
About:	<p>The New Dynamics of Ageing Programme is a eight year multidisciplinary research initiative with the ultimate aim of improving quality of life of older people. The programme is a unique collaboration between five UK Research Councils - ESRC, EPSRC, BBSRC, MRC and AHRC - and is the largest and most ambitious research programme on ageing ever mounted in UK.</p>
Website:	<p>http://www.newdynamics.group.shef.ac.uk/</p>
Based in:	<p>Sheffield</p>
Mission:	<p>The programme aims to develop practical policy and implementation guidance and novel scientific, technological and design responses to help older people enjoy better quality lives as they age. This requires integrating understandings of the changing meanings, representations and experiences of ageing and the key factors shaping them (including behavioural, biological, clinical, cultural, historical, social, economic and technological), through direct engagement with older people and user organisations. The programme will harness inputs from a wide range of disciplines to reveal the dynamic interplay between ageing individuals and their changing technological, cultural, social and physical environments - local, national and global - and to develop methods and means for overcoming the consequent constraints on the quality of life of older people.</p>

Name:	<p>NIHR Newcastle Biomedical Research Centre (BRC)</p> <p>Newcastle Biomedical Research Centre</p>
About:	<p>The NIHR Newcastle Biomedical Research Centre (BRC) is a partnership between the Newcastle upon Tyne Hospitals NHS Foundation Trust and the Faculty of Medical Sciences at Newcastle University. The aim of the centre is to comprehensively address the complex health care needs of the older people, based on an advanced understanding of the ageing process and age-related disease.</p> <p>It is one of 20 BRCs across England awarded major funding from the National Institute for Health Research (NIHR) to carry out world-class translational research and experimental medicine that benefits patients.</p> <p>The BRCs are formed through partnerships between leading NHS organisations and universities throughout England and they share the NIHR remit of translating scientific breakthroughs into improving the health and wealth of the nation.</p> <p>Their vision is improving lives through world-class research in ageing and long-term conditions.</p> <p>Their purpose is to build on and harness experimental medicine expertise in individual long-term conditions, to advance the diagnosis, treatment and prevention of ageing syndromes such as sarcopenia, frailty and multimorbidity. Ageing syndromes are conditions that adversely affect the health of large numbers of older people, yet they are not always recognised in clinical practice and therefore approaches to diagnosis, treatment and prevention are not well developed. Their BRC will be able to address this important area of unmet health need.</p>
Website:	<p>http://www.newcastlebrc.nihr.ac.uk</p>
Based in:	<p>Newcastle upon Tyne</p>
Research Topics:	<ul style="list-style-type: none"> • The ageing brain (dementia, stroke) • The ageing body (chronic liver disease, diabetes, cardiovascular disease) • The ageing limbs (musculoskeletal disease)

Name:

Oxford Institute of Population Ageing



About:

The Oxford Institute of Population Ageing was established in 1998. Based on the US Population Center, it was funded by a grant from the National Institute of Health (National Institute on Aging - NIA) to establish the UK's first population centre on the demography and economics of ageing populations. It achieved Institute status in 2001.

Their aim is to undertake research into the implications of population change. They are a multidisciplinary group with demography as our main disciplinary focus, and links into all four University Divisions. Their researchers work in Africa, Latin America, Asia and Europe, and they run the Population Networks AFRAN (Africa) LARNA (Latin America) EAST (Central and Eastern Europe).

«Changes in the demographic age structure of populations has become one of the major challenges for the 21st century. Driven predominantly by falling fertility rates across the globe as the Total Fertility Rates of two thirds of the globes countries now reach around or below replacement level, this age compositional shift has huge implications for all aspects of society and economy. Falling mortality rates, especially among the older population has enhanced this age shift, especially in advanced economies.

Key questions addressed by the Institute concern the ageing of populations, the potential of the growing labour pool in Emerging Economies, and the progress of the fertility transition in Least Developed Economies. This demographic change affects all regions of the world, from demographic deficits in Europe, demographic dividends in Asia and youth bulges on the Middle East.» - Professor Sarah Harper, Director, Oxford Institute of Population Ageing

Website:

<http://www.ageing.ox.ac.uk>

Based in:

Oxford

Research Topics:

- Understanding demographic change
- Demography and economy
- Demography and society
- Bio-Demography and health
- Demography, science and innovation
- Demography and environment

Name:

Salford Institute for Dementia



About:

Their approach is putting the humanity and personhood of the person with dementia at the heart of what they do. The institute is engaged in research, innovation and education in supportive design and care for people living with dementia. The focus of this work is the maintenance of independence and the promotion of integrated support in the communities where people live. At the University of Salford they have made the decision to utilise our resources to benefit those in our society whose lives have been changed by dementia today. In November 2013, they established the Salford Institute for Dementia, building on over three years of successful collaboration across a unique network of academics at the University. The Institute has at its heart a spotlight on the humanity and personhood of those living with dementia. Its driving philosophy is to enable people to live positive, fulfilled lives and instil in everyone a confidence that they can make a difference to an individual's experience of dementia. At Salford they are offering a multi-disciplinary lens on this urgent global challenge. As part of their work to become a "dementia friendly" university, over 50 colleagues from across the institution including the School of the Built Environment, the College of Health and Social Sciences and the School of Arts and Media, have created new collaborations to focus our work in this area. This has been supported by their key partners at a local, national and international level, including Alzheimer's UK, Four Seasons Healthcare and the Dementia Action Alliance through the establishment of their own local organisation, the Salford Dementia Action Alliance. Through these relationships and our wider discussions they have discovered that demand for knowledge, networks, expertise and investment in this area is urgently needed and significant.

Website:



<http://www.salford.ac.uk/salford-institute-for-dementia>


Based in:


Salford

Research Topics:

- Personhood and humanity
- Purposeful activity for people with dementia
- Design of private and public spaces
- Experience of black and ethnic minorities
- Experience of people living with dementia in hard to reach communities and individuals

Name:	<h1>The Positive Ageing Company</h1>  
About:	<p>The ageing population is becoming a major challenge for employers globally.</p> <ul style="list-style-type: none"> • Within 4 years - 1 in 3 workers will be aged 50+ • 1 in 9 employees are already working carers with that number forecast to increase significantly • 1 in 7 of those employees will leave employment to undertake full-time care of family members • The over-65's, who require family care, will grow by 60% - 10 to 16m over the next 10 years • It's not just about older workers – a significant proportion of the sandwich generation (40-55 year olds) increasingly have both child & elder care responsibilities • Recognising and helping employees to proactively deal with the root cause can save organisations considerable costs and improve ROI • The impact to organisations of employees dealing with elder care – was described by one bank HRD as ‘a sleeping tiger, that we really do need to address, sooner rather than later’. <p>Most organisations have no way of identifying and engaging with staff who have family care issues.</p>
Website:	<p>https://www.uk.mercer.com/what-we-do/health-and-benefits/eldercare-support-for-employees-and-their-families.html</p>
Based in:	<p>N/A</p>
Mission:	<p>AgeingWorks™ is:</p> <ul style="list-style-type: none"> • A pioneering digital health, wellbeing and eldercare platform - supporting valued employees & families on their ageing journey • A comprehensive online and offline programme - providing eldercare support, information, education & action steps • Designed to help employees & their families - reducing the stress & costs that ageing & later life can bring and positively improving overall quality of life! • Helping organisations build deep engagement, loyalty and retention whilst adapting to the changing needs of an ageing workforce and strengthening the Employee Value Proposition. • Providing organisations with active MI, data analytics and insights revealing the hidden employee needs and concerns, saving the considerable costs of presenteeism, stress and absenteeism and improving ROI.

Name:	<h1>The Silver Line</h1> 
About:	<p>Since our national launch, The Silver Line Helpline has received over 1.4 million calls. Over two-thirds of these calls were made overnight or at weekends when no other helpline is available for older people who may be lonely, isolated or confused. We now receive around 10,000 calls every week from lonely and isolated older people; with 53% of callers saying they have literally no-one else to speak to.</p> <p>Over 3,000 volunteer Silver Line Friends are making regular weekly friendship calls to older people. We have launched Silver Circles, group calls for people with shared interests, and have started Silver Letters for people who prefer the written word or are hearing impaired.</p> <p>We rely entirely on voluntary donations to cover the cost of calls to the helpline, The Silver Line's friendship services, and all other costs.</p>
Website:	<p>https://www.thesilverline.org.uk/</p>
Based in:	<p>London</p>
Mission:	<p>The Silver Line Helpline provides three functions to support older people:</p> <ul style="list-style-type: none"> • a sign-posting service to link them into the many, varied services that exist around the country; a befriending service to combat loneliness; • a means of empowering those who may be suffering abuse and neglect, if appropriate to transfer them to specialist services to protect them from harm.

Name:	<h1>UCL Innovation and Enterprise</h1> 
About:	<p>UCL Innovation and Enterprise, are a group of specialist teams working with students and staff to encourage a spirit of enterprise, create links with the outside world and accelerate UCL’s innovation and impact. Our work is at the heart of UCL’s ambition to change the world for the better and it plays a vital part in our shared mission to tackle the great global challenges of our time. For us, it starts with the belief that we all have the potential to make a difference, that every one of us in the UCL community has a role to play and a contribution to make. We believe UCL’s success comes from the knowledge and ideas of its people – academics and researchers, students and alumni, professional services and partners.</p> <p>UCL Innovation and Enterprise is here to help people across the university transform their knowledge and ideas into action. We encourage people to recognise their potential; giving them the confidence to think differently, to step out and be brave. We are here to help free more knowledge from across all of our UCL communities and share it in new and exciting ways, within and beyond the university. From our laboratories to our libraries, we are here to help put brilliant new ideas and discoveries to work in the real world.</p>
Website:	<p>https://www.ucl.ac.uk/enterprise/</p>
Based in:	<p>London</p>
Mission:	<p>UCL Innovation and Enterprise includes Business and Innovation Partnerships, Entrepreneurship, Commercial Strategy, Engagement and Communications, Planning, and Information and Project Management teams. We have two affiliated delivery partners that are wholly-owned subsidiary companies: UCL Business (UCLB), our technology transfer business, and UCL Consultants (UCLC), which facilitates academic consultancy.</p>

Name:

Wolfson Centre for Age-Related Diseases (Wolfson CARD)



About:

The Wolfson Centre for Age-Related Diseases (the «CARD») was opened in 2004 under the leadership of Professor Pat Doherty. They are a department within the Neuroscience Division of the world renowned Institute of Psychiatry, Psychology and Neuroscience (IoPPN) at King's College London.

Their overarching mission is to keep the brain healthy as we age, and to repair the damage that follows injury. Unfortunately as they get older we are at high risk of developing problems with sensory function that can result in conditions that include pain or hearing loss, and they are more likely to suffer damage to our nervous system as a consequence of a stroke or a spinal injury or a dementia.

Their research is geared towards understanding the molecular mechanisms that drive these conditions and to use that knowledge to develop new therapies to restore normal sensory function or to repair injury. They are privileged to have around 20 interactive research group working in these areas, and they are fully equipped for all aspects of cell and molecular biology and have wide expertise in a range of animal models to help us understand disease processes and test new treatments. They also have a number of «drug discovery» programs supported by a core histopathology lab and an innovative bioinformatics capability.

Website:

<http://www.kcl.ac.uk/ioppn/depts/wolfson/index.aspx>

Based in:

London

Research Topics:

- Neurodegeneration
- Regeneration
- Neurogenesis
- Receptors, channels, and signalling
- Pain
- Genetics of Deafness

UK Longevity Influencers



David Sinclair



**Baroness Sally
Greengross
OBE**



Eric Kihlstrom



Helen Whately



John Bell



Narendra Patel



Charles Alessi



Aubrey de Grey



Tina Woods



Jim Mellon



**Dmitry
Kaminskiy**



David Amess

David Sinclair



Title:	Director of the International Longevity Centre – UK
Bio:	<p>David has worked in policy and research on ageing and demographic change for 15 years.</p> <p>David has a particular interest in older consumers, adult vaccination, active ageing, financial services, and the role of technology in an ageing society. He has a strong knowledge of UK and global ageing society issues, from healthcare to pensions and from housing to transport.</p> <p>David has worked extensively on the issue of adult vaccination over the past eight years. He was a leading member of the SAATI coalition and is a board member of the Coalition for Life Course Immunisation.</p> <p>David has presented on longevity and demographic change across the world (from Stafford to Seoul and Singapore to Stormont). In 2016 David won the Pensions-Net-Work Award for “The most informative speaker 2006-2016”. He is frequently quoted on ageing issues in the national media.</p> <p>David is a member of the judging panel for the British Society of Gerontology Outstanding Achievement Award. He is a member of the Editorial Board for “Working with Older People”. David is a member of the Advisory Panel for the International Centre for Lifecourse Studies.</p>
Education and qualifications	David Sinclair graduated from Elfed High School (1986-2003) and studied British Politics and Legislative Studies at Hull University (1993-1997).
Appointments	David is a Chair of a London based charity (Open Age) which enables older people to sustain their physical and mental fitness, maintain active lifestyles and develop new and stimulating interests. He works as an “expert” for the pan-European Age Platform. He is also a member of the BT Customer Inclusion Leadership Panel. He works as a member of three DWP Age Action Alliance Working Groups and is the former Vice-Chair of the Government’s Consumer Expert Group for Digital Switchover.

Baroness Sally Greengross



Title:	Chief Executive of the International Longevity Centre – UK
Bio:	<p>Baroness Sally Greengross has been a crossbench (independent) member of the House of Lords since 2000 and Co-Chairs four All-Party Parliamentary Groups: Dementia, Corporate Social Responsibility, Continence Care and Ageing and Older People. She is the Vice Chair of the All-Party Parliamentary Group on Choice at the End of Life, and is Treasurer of the All-Party Parliamentary Group on Equalities. Sally is also Chair of the cross-party Intergenerational Fairness Forum.</p> <p>Was Co-President of the ILC Global Alliance from 2010-17 and is now their Special Ambassador; and was a Commissioner for the Equality and Human Rights Commission from 2006-12. Baroness Greengross was Director General of Age Concern England from 1987 until 2000. Until 2000, she was joint Chair of the Age Concern Institute of Gerontology at Kings College London, and Secretary General of Eurolink Age. She is an Ambassador for Alzheimer’s Society, SilverLine and HelpAge International. Baroness Greengross is a Member of several advisory boards including Home Instead’s Global Strategy Council; Fujitsu’s Responsible Business Board; and BlackRock Retirement Institute’s Advisory Council. She is President of the Pensions Policy Institute and the Association of Retirement Housing Managers; Honorary Vice President of the Royal Society for the Promotion of Health, a Vice President of the Local Government Association and Honorary Fellow of the Royal Society of Medicine and the Institute & Faculty of Actuaries.</p>
Education and qualifications	Baroness Greengross was educated at Brighton and Hove High School. She went on to study at the London School of Economics and Political Science.
Appointments	Her work on ageing has been recognised by the UN Committee on Ageing and she received an outstanding achievement award from the British Society of Gerontology as well a British Geriatric Society Medal. Sally was UK Woman of Europe in 1990 and has been an Ambassador for the Prince of Wales supporting responsible business practice.

Eric Kihlstrom

Innovate UK



Title:	Interim Director of Healthy Ageing Industrial Strategy Challenge Fund
Bio:	<p>As interim Director of Healthy Ageing Industrial Strategy Challenge Fund, I lead change across industry, Government, 3rd sector and academia to unlock opportunities that come with demographic changes.</p> <p>Former Digital Transformation Strategy Director with 30+ years of delivering impactful innovation to multi-national corporations as well as rapid growth start-ups. Part of pioneering team to disrupt telecoms industry in the nineties. Continue to deliver transformation via people-centred, analytics based, lean innovation.</p> <p>Eric is the Co-founder of KareInn, a care innovation company focused on improving the quality of life for our parents' generation. KareInn helps carers be more productive so they can deliver more personalised care. He is a former Digital Transformation Strategy Director with 27 years of delivering innovation to multi-national corporations as well as rapid growth start-ups. As well he is a part of pioneering team to disrupt telecoms industry in the nineties, continuing to deliver transformation via user focus, analytics and lean innovation.</p>
Education and qualifications	<ul style="list-style-type: none">• University of Pennsylvania (1983 – 1987) BA in Economics• New York University (1991 – 1993) MBA in Finance

Helen Whately



Title:	Member of Parliament for Faversham and Mid Kent and Chair of the APHG
Bio:	<p>Helen Whately is a British Conservative Party politician who has been the Member of Parliament (MP) for the Faversham and Mid Kent constituency in Kent since 2015.</p> <p>Helen also sat on the Health Select Committee in the 2015-17 Parliament.</p> <p>Helen has an established career in business and healthcare. For nearly a decade, she has worked with NHS hospitals, helping them improve care and make the most of resources. She has also advised healthcare regulators and commissioners, and worked on healthcare policy.</p> <p>Previously Helen ran a business unit at AOL Time Warner, negotiated deals for AOL Europe and trained as a management accountant at PricewaterhouseCoopers.</p> <p>Alongside her career, Helen has worked with several charities as a volunteer and advisor, and been a school governor.</p>
Education and qualifications	Her early education was at Westminster School, London. She graduated with a bachelor's degree in Philosophy, Politics and Economics (PPE) from Lady Margaret Hall, Oxford.
Appointments	Since 2015, Helen has been a vice-president of the Maidstone branch of the learning disability charity Mencap. Helen became the PPS to the Secretary of State for Education, and Minister for Women and Equalities Justine Greening. She also became the chair of the APPG for Health, and Personalised Medicine and continued to be chair of the APPG for Mental Health, and Fruit and Vegetable Farmers.

Sir John Bell



Title:	Board Member of the UK Clinical Research Collaboration and UK Biobank and is Chairman of the Oxford Health Alliance
Bio:	<p>Professor Bell went to Oxford as a Rhodes Scholar to train in medicine and undertook postgraduate training in London and at Stanford University. At Stanford he developed research interests in the area of immunology and genetics with a particular focus on characterising the molecular events associated with susceptibility to autoimmune diseases.</p> <p>He was appointed by the Chancellor of the Exchequer in 2006 to Chair the Office for the Strategic Coordination of Health Research (OSCHR), the body responsible to co-ordinate the research functions of the NIHR and the MRC. In 2008 he was made a Fellow of the Royal Society and was made a Knight Bachelor for his services to Medical Science. He was President of The Academy of Medical Sciences from 2006 to 2011.</p> <p>Professor Bell sits on a wide range of advisory panels for public and private sector bodies responsible for biomedical research in Canada, Sweden, Denmark, France, Singapore and the UK. He sat on the Scientific Advisory Board for AstraZeneca from 1997 to 2000 and has sat on the Scientific Advisory Board of the Roche Palo Alto facility since 1998. He is a non-executive director of Roche AG (since 2001) and of Genentech (since 2009). He is a member of the Bill and Melinda Gates Foundation Scientific Advisory Committee.</p> <p>He is a founding director of three biotechnology start up companies.</p>
Education and qualifications	<ul style="list-style-type: none">• Oxford University• Postgraduate training in London and at Stanford University.
Appointments	Professor Bell was elected a Fellow of the Academy in 1998.

Narendra Patel



MRC

Medical
Research
Council

Title:	Chairman of the UK Stem Cell Oversight Committee, the UK Stem Cell Network and the National Patient Safety Agency of England and Wales. Council member of the Medical Research Council.
Bio:	<p>Narendra Patel, Baron Patel is a British obstetrician and cross bench peer, and a former Chancellor of the University of Dundee. Lord Patel joined the House of Lords in 1999 and proceeded to serve on the Science and Technology Committee (1999-2008), the Select Committee on Science and Technology Sub-Committee (1999-2005), the Committee on the Assisted Dying for the Terminally Ill Bill and the Procedure Committee. He is currently Chairman of the UK Stem Cell Oversight Committee, the UK Stem Cell Network and the National Patient Safety Agency of England and Wales. He is a council member of the Medical Research Council.</p> <p>Prior to his career in the House, Lord Patel studied medicine and worked for more than thirty years at Dundee's Ninewells Hospital, becoming a consultant obstetrician in 1974. He has been a Fellow of the Royal College of Obstetricians and Gynaecologists since 1988. He has since served as Chairman of the Academy of Medical Royal Colleges of Scotland as well as the Academy of Medical Royal Colleges of the UK. He is the current President of Attend, a national charity that supports and expands the roles volunteers play in creating healthy communities, and a past President of the Royal College of Obstetricians and Gynaecologists.</p>
Education and qualifications	Baron Patel studied Medicine at Queen's College, University of St Andrews, (now the University of Dundee) graduating in 1964.
Appointments	Patel received a knighthood in the 1997 Queen's Birthday Honours, and was created a life peer on 1 March 1999, as Baron Patel, of Dunkeld in Perth and Kinross. He has served as Vice-President of the All-Party Parliamentary Group on Maternity Services since 2002 and of the group on Infertility Services since 2003, as well as being Chairman of the Stem Cell Steering Committee since 2003. He has been a member of the Science and Technology committee since his elevation. On St Andrew's Day, 30 November 2009, Lord Patel was appointed to the Order of the Thistle by Queen Elizabeth II.

Charles Alessi



Public Health
England



Title:	Senior Advisor at Public Health England
Bio:	<p>Dr Charles Alessi is a GP in south-west London. He is Senior Adviser to Public Health England and in addition acts in a variety of external facing positions with government and other agencies. He is also lead for dementia and risk reduction and recently was appointed as director of antibiotic prescribing for Public Health England as part of the Antimicrobial resistance initiative.</p> <p>He has extensive experience of health care in a variety of senior positions in both primary and secondary care as well as PCTs and Health Authorities, assuming the role of Chairman of National Association of Primary Care, part of the NHS confederation, from 1st January 2012 until September 2014 where he was at the heart of the recent health and social care reforms. Previously as Medical director and PEC chair, he was intimately involved in the running and setting up of the Kingston Clinical Commissioning Group providing services to over 195,000 patients, 29 practices and over a 130 GPs.</p> <p>He has extensive experience of working at senior levels both internationally, in both Europe and the Americas. He is internationally active advising both Governments and international organisations. He also has experience of military medicine until recently acting as Director of Medicine and Clinical Governance for the British Armed Forces in Germany.</p>
Appointments	<p>On the 1st July 2012 Dr Alessi was appointed Adjunct Research Professor in the faculty of Health Innovation at the Ivey School of Business, and on the 1st July 2013, he was also appointed Adjunct Research Professor in clinical neurosciences at the Schulich school of Medicine and Dentistry, both appointments at the University of Western Ontario, Canada. In September 2014, he was appointed visiting Professor in Psychology and Language Sciences at University College London, England.</p>

Aubrey de Grey



Title:	Chief Science Officer, SENS Research Foundation
Bio:	<p>Dr. de Grey is the biomedical gerontologist who researched the idea for and founded SENS Research Foundation. Dr. de Grey is Editor-in-Chief of Rejuvenation Research, is a Fellow of both the Gerontological Society of America and the American Aging Association, and sits on the editorial and scientific advisory boards of numerous journals and organizations.</p> <p>He has also pioneered new privacy, biosafety, ELSI, environmental and biosecurity policies. He is director of an IARPA BRAIN Project and NIH Center for Excellence in Genomic Science. He has co-authored 425 papers, 95 patent publications and one book (Regenesis).</p> <p>He is known for his view that medical technology may enable human beings alive today to live indefinitely. De Grey's research focuses on whether regenerative medicine can prevent the aging process. He works on the development of what he calls "Strategies for Engineered Negligible Senescence" (SENS), a collection of proposed techniques to rejuvenate the human body and stop aging. To this end, he has identified seven types of molecular and cellular damage caused by essential metabolic processes. SENS is a proposed panel of therapies designed to repair this damage. He is also a member of Flooved advisory board.</p>
Education and qualifications	He was educated at Sussex House School and Harrow School. He attended the University of Cambridge, and studied at its constituent college of Trinity Hall. He graduated with a BA in computer science in 1985 and Ph.D. in Biology from the University of Cambridge in 2000.
Appointments	His honors include election to NAS and NAE and Franklin Bower Laureate for Achievement in Science.

Tina Woods



Title:	Founder & CEO, Collider Health - health innovation catalyst and ecosystem architect
Bio:	<p>Tina Woods is the founder of Collider Health, a health innovation catalyst that works with organisations of all shapes and sizes to think and do differently and transform health with meaningful impact. Tina is chair of Future Health Collective, a multi-disciplinary, cross-industry group geared to foster collaboration and radical innovation in areas of unmet need in health and social care.</p> <p>Tina is currently helping the NHS build their Artificial Intelligence ecosystem, supporting Innovate UK with consortia development for the UK Healthy Ageing Grand Challenge, designing the European Diversity Award for leading insurer AXA Health Tech & You programme, and a number of other projects.</p>
Education and qualifications	Tina has a degree in genetics from Cornell University in the USA and an MBA from Cass University in London.

Jim Mellon

JUVENESCENCE



Title:

Co-Founder & Chairman at Juvenescence

Bio:

Jim is a visionary entrepreneur with a flair for identifying emerging global trends. Most notably and very publically, he predicted the credit crunch of 2007-08 in a book entitled "Wake Up! Survive and Prosper in the Coming Economic Turmoil". The book cited catalysts for the impending crisis including unsustainable levels of consumer debt in the western world, a U.S. housing crash, derivative financial instruments and governmental fiscal mismanagement - the rest is history! Jim followed this with "The Top 10 Investments for the Next 10 Years" (2008) and then "Top Ten Investments to Beat the Crunch!" (2009).

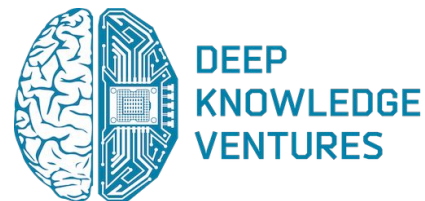
With Jim's wealth of knowledge and vast experience allows Burnbrae to capitalise on sound opportunistic investments ideas. Through these investments, Jim has built a worldwide business empire. Jim is serially amongst the top 10% in the Sunday Times Rich List and holds a master's degree in Politics, Philosophy and Economics from Oxford University.

Education and qualifications

Oxford University

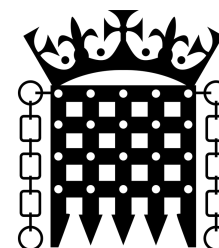
Appointments

Dmitry Kaminskiy



Title:	Co-founder and a managing partner at Deep Knowledge Ventures
Bio:	<p>Dmitry Kaminskiy is the Founding Partner of Deep Knowledge Life Sciences, which is specifically focused on disruptive geroscience and preventive medicine startups aiming to extend healthy longevity with cutting-edge biomedical and AI technologies.</p> <p>Dmitry Kaminskiy is a frequent speaker on the topics of AI and Longevity. During the last few years he spoke at conferences organized in London by The Economist “Aging Societies and The Business of Longevity”, Financial Times “Global Pharmaceutical and Biotechnology Conference”, at the "Precision Medicine World Conference" in Silicon Valley, as well as several others at Oxford and Cambridge Universities.</p> <p>One of Dmitry’s major interests is anti-aging and healthy longevity, which he has engaged in business, research, and public activities. He is the Managing Trustee of the Biogerontology Research Foundation, a leading UK think tank supporting the development of geroscience and healthy longevity. Dmitry’s announcement of a \$1 million USD prize for the first person to reach their 123rd birthday was covered by Forbes, as well as other top business media outlets.</p> <p>Deep Knowledge Life Sciences has been the lead investor in a number of promising geroscience companies, including Insilico Medicine, a pioneer in applying AI and deep learning to age-related biomarker and drug discovery (and the consortium of companies around Insilico, including Youth Laboratories and Longensis), and five other companies in the fields of Geroscience, NeuroTech, Preventive Medicine, and Longevity focused Mobile Apps.</p>
Education and qualifications	National Research University of Electronic Technology / MIET (1994 – 1999)
Appointments	Managing Trustee, The Biogerontology Research Foundation; Managing Partner, Deep Knowledge Ventures; Founding Partner, Deep Knowledge Life Sciences

David Amess



Title:	Member of Parliament for Southend West. Chair of the Conservative Party Backbench Committee for Health
Bio:	<p>Sir David Amess is a British Conservative Party politician. He has been a Member of Parliament (MP) since 1983, first for Basildon, and since 1997 for Southend West.</p> <p>After more than thirty years in the House of Commons, Sir David Amess joins this APPG with a wealth of experience in a range of issues, particularly in health. Sir David served on the Health Committee from 1998 until 2007 while also serving as Chair of the Conservative Party Backbench Committee for Health since 1999. He also served on multiple Backbench Business Committees from 2012 to 2015 and still serves on the Panel of Chairs as well as the Administration Committee.</p> <p>David has sponsored numerous successful bills, received the Dods Outstanding Achievement Award in recognition of his lifetime commitment to charitable work and can be found frequently chairing Public Bill Committees, Westminster Hall debates and even Committees of the whole House.</p>
Education and qualifications	Amess attended St Anthony's Junior and Infant School, then St. Bonaventure Grammar School on Boleyn Road in Forest Gate and then Bournemouth College of Technology, where he earned a BSc degree with honours in Economics and Government.
Appointments	Chairmen's Panel Committee (2001–present), Administration Committee (2015–present), Health Committee (1998–2008). Amess served on the Health Select Committee from 1998 until 2007. Due to his role on the Health Select Committee, he became Chair of the Conservative Party Backbench Committee for Health in 1999. He has campaigned on various health issues since. While a member of the committee, Amess played a prominent role holding an inquiry into the state of obesity in UK, leading to the publication of a report in 2004. The report found that two-thirds of the population of England are overweight or obese and went on to discuss the causes of obesity, as well as making various recommendations to combat the problem. To this day, he maintains an interest in the issue, most recently tabling a series of Parliamentary Questions in July 2013.

Top Longevity Scientists and Experts



Malcolm Jackson



Tom Kirkwood



George P. Willis



Helen R. Griffiths



Martin Green



Anders Sandberg



Tim Spector



Ben Franklin



Andrew Scott



Qing-Jun Meng



Ilora Gillian Finlay



**Leslie Arnold
Turnberg**



Dame Denise Platt



Philippa Whitford



Linda Partridge



David Kipling



Paul Keith Potter



Julia Neuberger



John Speakman



Suzanne Wait



Jon Date

Malcolm Jackson



Title:	Head of Institute of Ageing and Chronic Disease; Director of the MRC-Arthritis Research UK Centre for Integrated Research into Musculoskeletal Ageing (CIMA)
Bio:	<p>Professor Malcolm Jackson was awarded a DSc in 1994 and FRCPATH in 1997. He was a Lecturer at University College London in 1982, Senior Lecturer at the University of Liverpool in 1984 and appointed Professor in 1994 before being appointed Head of the Institute of Ageing and Chronic Disease in 2010.</p> <p>He is Director of the MRC-Arthritis Research UK Centre for Integrated Research into Musculoskeletal Ageing (CIMA) and serves on the MRC Population and Systems Medicine Board and the Joint Research Councils' Life Long Health and Wellbeing Panel.</p> <p>Malcolm's primary research interests are in the roles of reactive oxygen species in cell signaling and degeneration, particularly relating to ageing and skeletal muscle. His research is funded by the MRC, BBSRC, the US National Institute on Ageing and the Wellcome Trust.</p>
Education and qualifications	Professor Malcolm Jackson completed a PhD at UCL in 1980. He has a BSc in Biochemistry from University College, London.
Appointments	Malcolm Jackson was awarded a DSc in 1994 and FRCPATH in 1997

Tom Kirkwood



Title:	Associate Dean for Ageing in Newcastle University
Bio:	<p>English biologist who made his contribution to the biology of ageing by proposing the concept of Disposable soma. He is currently a researcher and Associate Dean for Ageing in Newcastle University and he headed the Institute for Ageing and Health in its school of clinical medical sciences.</p> <p>He is the author of <i>Time of Our Lives: The Science of Human Aging</i> (1999), <i>The End of Age: Why Everything About Aging Is Changing</i> (2001), and co-author of <i>Chance, Development, and Aging</i> (2000, together with Caleb E. Finch). In 2001 he gave the annual Reith Lectures.</p> <p>In 2004 Professor Kirkwood had been appointed special advisor to the House of Lords Science and Technology Committee, which held an inquiry into ageing.</p> <p>In 2007 Professor Kirkwood led the "Mental Capital Through Life" study that formed an important element of the Government's 2008 Foresight Report "Mental Capital and Wellbeing: Making the Most of Ourselves in the 21st Century". This highlighted the need to harness the knowledge, skills, lifelong experience and wisdom of older people.</p>
Education and qualifications	<ul style="list-style-type: none">● BA Mathematics, University of Cambridge, 1972.● MSc Applied Statistics, University of Oxford, 1973.● PhD Biology, University of Cambridge, 1983.
Appointments	Kirkwood was appointed Commander of the Order of the British Empire (CBE) in the 2009 New Year Honours.

George Philip Willis



Title:	Chair of the Association of Medical Research Charities, President of the Association of Colleges Charitable Trust and a member of the Foundation for Science and Technology.
Bio:	<p>Baron Willis of Knaresborough is a Liberal Democrat member of the House of Lords, and was Member of Parliament (MP) for Harrogate and Knaresborough from 1997 until retiring at the 2010 general election. Up to that date he was the chair of the House of Commons Science and Technology Committee.</p> <p>Lord Willis has spent his time in both Houses of Parliament as an active authority in health and scientific affairs he has served as a member and Chair of the House of Commons Science and Technology Select Committee and then as Chair of the House of Commons Innovation, Universities, Science and Skills Select Committee. This was followed by tenure as Chair of the Joint Committee on the Draft Human Tissue and Embryos Bill. Once the House of Commons Science and Technology Select Committee was reinstated, Lord Willis was re-elected as its Chair. Following publication of the Willis Commission Report on the future education and training of pre-registration, Lord Willis was commissioned by Health Education England in partnership with the Nursing Midwifery Council to be the Independent Chair of the Shape of Caring – a review into the education and training of nurses and care assistants.</p>
Education and qualifications	He attended Burnley Grammar School on Byron Street in Burnley. He studied at the City of Leeds and Carnegie College (now the Beckett Campus of Leeds Metropolitan University) where he gained a Cert Ed in 1963.
Appointments	On 18 June 2010, Willis was created a life peer with the title Baron Willis of Knaresborough, of Harrogate in the County of North Yorkshire and was introduced in the House of Lords on 7 July 2010.

Helen R. Griffiths



Title:	Executive Dean, Faculty of Health & Medical Sciences, University of Surrey. Chair of British Society for Research on Ageing
Bio:	<p>Research interests:</p> <ul style="list-style-type: none">• Nutrient-gene interaction - effects on cellular and plasma proteome• Interplay between lipids/sphingolipids and reactive oxygen species• Monocyte-endothelial cell dysfunction during inflammation• Intracellular redox regulation of cell survival and adaptation• Reversible protein oxidation during signalling, and the effects of irreversible modification on function <p>Employment:</p> <ul style="list-style-type: none">• 2005–date Professor in Biomedical Sciences, Aston University• 1998-2005 Reader in Molecular Biosciences, Aston University• 1991-98 Lecturer in Pathology (0.5 FTE), University of Leicester• 1989-91 Lecturer in Clinical Chemistry, University of Birmingham• 1986-89 PhD, University of Birmingham• 1985-86 Research Associate, Dept Immunology, University of Birmingham• 1981-85 BSc. Hons, Biochemistry (Class I), University of Bath <p>Membership of Professional Bodies:</p> <ul style="list-style-type: none">• British Society for Research on Ageing (Chair)• UK Deans of Science (Chair)• European Society for Free Radical Research (Executive member).• Biochemical Society Theme Panel III• Member of the Midlands ARUK, funded by the Alzheimer’s Research UK• BBRSC panel D (member)• Nutrition Society (member)• Fellow of the Society of Biology
Education and qualifications	Helen Griffiths graduated University of Bath, BSc Biochemistry (1981 – 1985)

Martin Green



Title:	<p>Chief Executive of Care England, Chair of the International Longevity Centre, and a Trustee of Independent Age and the National Aids Trust.</p>
Bio:	<p>Martin Green has had an extensive career in NGO development, nationally and internationally, and is Chief Executive of Care England, the largest representative body for independent social care services in UK. He is also Chair of the International Longevity Centre, and a Trustee of Independent Age and the National Aids Trust.</p> <p>In 2013 he was appointed Visiting Professor of Social Care to Buckinghamshire New University. In 2012, in his role as Department of Health Independent Sector Dementia Champion, he led the development of the Dementia Care and Support Compact for The Prime Minister's Challenge on Dementia.</p> <p>He is also a member of the Secretary Of State for Health's Stakeholder Board; a Dignity Commissioner; a Lambeth Transformation Commissioner; A Member of the Nursing and Care Quality Forum; a Board Member of the National Institute for Health Research (School of Social Care) and a founder trustee of The National Skills Academy for Social Care.</p> <p>Martin Green writes and broadcasts extensively on social care issues, and is on the Editorial Board of Community Care Market News.</p>
Education and qualifications	<p>Kink Edward VI Morpeth Northumberland, Sociology History Religious Studies (1973 – 1978)</p>
Appointments	<p>Martin Green was awarded an OBE for Services to Social Care in the 2012 Queen's Birthday Honours List. In 2008 he was named Care Personality of the Year.</p>

Anders Sandberg



Title:	Senior Research Fellow
Bio:	<p>Anders Sandberg's research at the Future of Humanity Institute centres on management of low-probability high-impact risks, estimating the capabilities of future technologies, and very long-range futures. Anders is a Senior Research Fellow on the ERC UnPrEDICT Programme and the FHI-Amlin Collaboration.</p> <p>Topics of particular interest include global catastrophic risk, cognitive biases, cognitive enhancement, collective intelligence, neuroethics, and public policy. He is research associate to the the Oxford Uehiro Centre for Practical Ethics, and the Oxford Centre for Neuroethics. He is on the advisory boards of a number of organisations and often debates science and ethics in international media. Anders has a background in computer science, neuroscience and medical engineering. He obtained his Ph.D. in computational neuroscience from Stockholm University, Sweden, for work on neural network modelling of human memory.</p> <p>Between 1996 and 2000 he was Chairman of the Swedish Transhumanist Association. He was also the scientific producer for the neuroscience exhibition "Se Hjärnan!" ("Behold the Brain!"), organized by Swedish Travelling Exhibitions, the Swedish Research Council and the Knowledge Foundation, that toured Sweden in 2005–2006. In 2007 he was a postdoctoral research fellow at the Uehiro Centre for Practical Ethics at Oxford University, working on the EU-funded ENHANCE project on the ethics of human enhancement.</p> <p>Sanders has also supported and advocated cryonics, for example by signing an open letter to support research into cryonics and by being an advisor to the UK Cryonics and Cryopreservation Research Network, a UK advocacy group.</p>
Education and qualifications	He holds a Ph.D. in computational neuroscience from Stockholm University, and is currently a James Martin Research Fellow at the Future of Humanity Institute at Oxford University.

Tim Spector



Title:

Professor of Genetic Epidemiology

Bio:

Tim Spector is a Professor of Genetic Epidemiology and Director of the TwinsUK Registry at Kings College, London. He trained originally in rheumatology and epidemiology.

In 1992 he moved into genetic epidemiology and founded the UK Twins Registry, of 13,000 twins, which is the richest collection of genotypic and phenotypic information worldwide. He is past President of the International Society of Twin Studies and directs the European Twin Registry Consortium (Discotwin) and collaborates with over 120 centres worldwide.

He has demonstrated the genetic basis of a wide range of common complex traits, many previously thought to be mainly due to ageing and environment. Through genetic association studies (GWAS), his group have found over 500 novel gene loci in over 50 disease areas. He has published over 800 research articles and is ranked as being in the top 1% of the world's most published scientists by Reuters.

His current work focuses on omics and the microbiome and directs the crowdfunded British Gut microbiome project. He is a prolific writer with several popular science books and a regular blog, focusing on genetics, epigenetics and most recently microbiome and diet (The Diet Myth). He is in demand as a public speaker and features regularly in the media.

Research interests: Genetic epidemiology; twin studies; chronic complex trait genetics; CVD; metabolic; ageing; locomotor

Appointments

He holds a prestigious European Research Council senior investigator award in epigenetics and is a NIHR Senior Investigator.

Ben Franklin



Title:	Assistant Director, Research and Policy at International Longevity Centre
Bio:	<p>Ben Franklin leads the ILC-UK's work on the economic implications of population ageing. He has published numerous reports on pensions and savings, longer working lives, adult social care and the future of the UK welfare state. Ben has spoken at many high profile events and conferences, including the launch of the flagship Missing Million report with the Prince of Wales and at the recent Select Committee inquiry into Intergenerational Fairness.</p> <p>Prior to ILC-UK, Ben worked as an Associate in the Financial Conduct Authority's Risk Department. In this role, Ben undertook economic analysis to support the organisation's shift to a more forward looking approach to regulating the financial services sector.</p> <p>Before the FCA, Ben was Policy and Research Manager at the Chartered Insurance Institute where, amongst other things, he led a major research project called "Future Risk" to coincide with the Institute's centenary. And before all this, Ben spent a year working in the Financial Stability Unit of the Treasury as a researcher in the immediate aftermath of the banking crisis.</p>
Education and qualifications	University of Essex, MA International Relations University of Essex, BA Politics

Andrew Scott

London
Business
School



Title:

Professor of Economics at London Business School

Bio:

Andrew Scott is Professor of Economics at London Business School and a Fellow of All Souls, Oxford University and the Centre for Economic Policy Research. He has previously held posts at Harvard University, London School of Economics and Oxford University. His research and advisory work focuses on the short and long run forces that affect governments and business. He has been an advisor to HM Treasury, Bank of England, the House of Commons, a Non Executive Director at the Financial Services Authority and Economic Advisor to the Prime Minister of Mauritius. He has published widely in leading international academic journals and was Managing Editor of the Royal Economic Society's *The Economic Journal* and Scientific Chair of the Euro Area Business Cycle Network. He has received prizes and research grants for his published work and is a sought after public speaker on future trends. He has won the General Teaching Excellence prize at London Business School and is a co-author of a textbook, *Macroeconomics: Understanding the Global Economy*, which has been translated into four languages and soon will appear in its Fourth Edition.

Education and qualifications

Oxford University, Doctor of Philosophy (PhD) Economics
London School of Economics and Political Science, Master of Science (MSc) Economics

Qing-Jun Meng



Title:	Chair of Division of Cell Matrix Biology & Regenerative Medicine (L5); Professor of Chronobiology and an Arthritis Research UK (ARUK) Senior Research Fellow in the Faculty of Biology, Medicine and Health, the University of Manchester.
Bio:	<p>Qing-Jun Meng is a Professor of Chronobiology and an Arthritis Research UK (ARUK) Senior Research Fellow in the Faculty of Biology, Medicine and Health, the University of Manchester. He is also the Academic Lead of the Biosciences International Summer School, BIO-SISS.</p> <p>In 2009, Qing-Jun was awarded a MRC Career Development Award Fellowship on clocks and age-related diseases. In 2015, he was awarded an ARUK Senior Research Fellowship to continue his work into the roles of circadian clocks in health and disease of the musculoskeletal system. Qing-Jun's research profile has been featured on the MRC Insight magazine and the Arthritis Research UK website. He was recently interviewed by the BBC Radio Stoke, BBC Radio 5, BBC Radio Manchester and That's Manchester television.</p>
Education and qualifications	Qing-Jun obtained his MD and PhD in China, followed by post-doctoral training at the University of Manchester on the molecular mechanisms and pharmacological resetting of the biological clocks.
Appointments	<ul style="list-style-type: none">• Arthritis Research UK (ARUK) Senior Research Fellowship Award, 2015• MRC Fellowship Partnership Award, 2013• MRC Centenary Early Career Award, 2012• FLS PIN Award (Promoting Interface Networking), 2011.• MRC Career Development Award, 2009.• Overall Best Presentation winner in the Faculty Research Symposium, 2009.• Awardee of Leonardo Da Vinci Programme (Workplace-within-Europe), 2005.• Awardee of Leonardo Da Vinci Programme (Workplace-within-Europe), 2003.

Ilora Gillian Finlay



Title:	President of the Chartered Society of Physiotherapy and Vice President of Marie Curie Cancer Care; Consultant for both Palliative Medicine and the Velindre Cancer Centre
Bio:	<p>Lady Llandaff is a doctor, professor of palliative medicine and active parliamentarian on health affairs. In the House of Lords, she has served on multiple Science and Technology Sub Committees and Select Committees, as well as a Committee on the Assisted Dying for the Terminally Ill Bill.</p> <p>She also chairs the Welsh Medical and Dental Academic Advisory Board and the Palliative Care Strategy Implementation Board for Wales. She is president of the Chartered Society of Physiotherapy and Vice President of Marie Curie Cancer Care as well as a consultant for both Palliative Medicine and the Velindre Cancer Centre. Lady Finlay is a past president of the British Medical Association as well as the Royal Society of Medicine and remains a patron of both the Trussell Trust's foodbank network in Wales and the Motor Neurone Disease Association. It was Baroness Finlay who started the Marie Curie Hospice in Wales and the independent think tank Living and Dying Well. She also initiated iWantGreatCare, a dynamic patient feedback evaluation of health services across Wales. Prior to her political career, she was a GP in Glasgow before returning to Cardiff to work full-time in care of the terminally ill.</p>
Education and qualifications	Cardiff University; Department of Pharmacology, Radiology, Oncology & Palliative Medicine
Appointments	On 28 June 2001, she was made a life peer as Baroness Finlay of Llandaff, of Llandaff in the County of South Glamorgan. In March 2015, Finlay was awarded the Grassroot Diplomat Initiative Honouree for her vigorous champion to improving the care of dying patients

Leslie Arnold Turnberg



Title:	Member of the House of Lords; Scientific adviser to the Association of Medical Research Charities
Bio:	<p>Lord Turnberg has been an active member of the House of Lords since earning his life peerage in 2001.</p> <p>He has contributed to Joint Committees on the Draft Human Tissue and Embryos Bill and the Draft Mental Health Bill; the Committee on the Assisted Dying for the Terminally Ill Bill; and has served on numerous Committees on Science and Technology from 2001 to 2005.</p> <p>In his professional life, Lord Turnberg was named President of the Association of Physicians, the Medical Protection Society and the Royal College of Physicians, as well as the Vice President of the Academy of Medical Sciences. He has acted as Chairman of the UK Forum on Genetics and Insurance, and the Board of the Public Health Laboratory Service, as well as a Trustee of Weizmann UK, Ovarian Cancer Action and the Wolfson Foundation.</p> <p>Prior to his career in politics, Lord Turnberg was a Professor of medicine and eventually became Dean of the Medical faculty at the University of Manchester. He also provided his services as a consultant gastroenterologist at Hope Hospital and currently holds honorary fellowships from sixteen different UK and overseas colleges.</p>
Education and qualifications	He studied medicine at Manchester University from 1952 to 1957, and completed his house posts in North Manchester hospitals, and trained at the Manchester Royal Infirmary and later in London at the Whittington Hospital and University College Hospital.[1] He developed a specialist interest in gastroenterology, lecturing at the Royal Free Hospital at the liver unit developed by Sheila Sherlock.
Appointments	Turnberg received a knighthood in 1994 Birthday Honours for services to medicine, having the honour conferred by The Queen on 13 December 1994. On 4 May 2000 he was created a Life Peer by Letters Patent, taking the title Baron Turnberg, of Cheadle in the County of Cheshire.

Dame Denise Platt



Title:	Chair of the Commission for Social Care Inspection.
Bio:	<p>Dame Denise Platt is the Chair of the Commission for Social Care Inspection. Prior to this appointment in 2004, she was Chief Inspector, Social Services Inspectorate, and Director for Children, Older People and Social Care Services at the Department of Health of the United Kingdom.</p> <p>She has held a variety of posts both nationally and locally, in local government and social care. These include Director of Social Services, London Borough of Hammersmith and Fulham, and Head of Social Services at the Local Government Association. She is a past President of the Association of Directors of Social Services, and was Chair of the National Institute for Social Work. She is also an honorary fellow of the Centre for Citizen Participation and a member of the University Court at Brunel University, a Trustee of the National Society for the Prevention of Cruelty to Children (NSPCC), a member of the National Executive Council of the fpa (Family Planning Association), a Governor of the University of Bedfordshire, Chair of the National AIDS Trust, and a member of the Independent Review Board of the Cheshire Fire & Rescue Services. She has completed a review of the 'Status of Social Care' for the Secretary of State for Health in April 2007.</p>
Education and qualifications	Cardiff University / Prifysgol Caerdydd, B.Sc.Econ, Economics and Social Administration (1964 – 1967). She qualified in Medical social work in 1968.
Appointments	She is also an honorary fellow of the Centre for Citizen Participation at Brunel University, an honorary council member of the National Society for the Prevention of Cruelty to Children (NSPCC), a member of the National Executive Council of the Family Planning Association, a Governor of the University of Bedfordshire, Chair of the National AIDS Trust, a member of the Independent Review Board of the Cheshire Fire and Rescue Services and a Trustee of NSPCC. Her personal interests include love of art and of opera, especially Wagner's Ring Cycle.

Philippa Whitford



Title:	SNP Health spokesperson in the House of Commons
Bio:	<p>Philippa Whitford is a Scottish National Party politician and surgeon. She was first elected as the Member of Parliament (MP) for Central Ayrshire in May 2015 and was re-elected at the 2017 general election. She is the SNP Health spokesperson in the House of Commons.</p> <p>Whitford worked as a consultant breast surgeon at Crosshouse Hospital for more than eighteen years. Just after the First Gulf War and during the First Palestinian Intifada at the age of thirty, Whitford served for a year and a half as a medical volunteer in a UN hospital in Gaza. She spent the 2016 parliamentary recess travelling to the West Bank to operate on four women suffering from breast cancer, and visited the Gaza Strip to advise local hospitals on how to improve healthcare.</p> <p>She has been a medical volunteer in a UN hospital in Gaza and also spent time in Southern Lebanon doing project planning for the charity Medical Aid for Palestinians. Upon returning to Scotland, she led the development of Scottish Breast Cancer standards to raise the quality of care across Scotland. Philippa is currently the Shadow SNP Westminster Group Leader for Health and has made championing the core principles of the NHS one of her central mandates. She has been a strong advocate for better team work and a more open approach to reporting incidents as well as better health standards and reducing the privatisation of health services.</p>
Education and qualifications	She was educated at Wood Green: St. Angela's Providence Convent Secondary School in London and Douglas Academy in Milngavie, before studying at the University of Glasgow, where she graduated with medical degrees.
Appointments	Whitford was selected to contest Central Ayrshire for the SNP at the 2015 general election.

Linda Partridge



Title:	Founding director of Max Planck Institute for Biology of Ageing in Cologne and Director of the UCL Institute of Healthy Ageing.
Bio:	<p>After three years of postdoctoral research at the University of York, she was Demonstrator, Lecturer, Reader and finally Professor at the University of Edinburgh. After many years in Scotland, in 1994 she became Professor of Biometry, University College London. She is both a founding director of the new Max Planck Institute for Biology of Ageing in Cologne and Director of the UCL Institute of Healthy Ageing.</p> <p>Linda Partridge's research is directed to understanding both how the rate of ageing evolves in nature and the mechanisms by which healthy lifespan can be extended in laboratory model organisms. Her work has focussed in particular on the role of nutrient-sensing pathways, such as the insulin/insulin-like growth factor signalling pathway, and on dietary restriction. Her current work is directed to developing pharmacological treatments that ameliorate the human ageing process to produce a broad-spectrum improvement in health during ageing. She is the recipient of numerous awards, including a DBE for services to science. She is founding director of the new Max Planck Institute for Biology of Ageing in Cologne as well as the Director of the UCL Institute of Healthy Ageing.</p>
Education and qualifications	Linda Partridge studied and graduated in biology at the University of Oxford.
Appointments	She was elected to the Academy of Medical Sciences in 2004, and was awarded the Linnean Society of London's prestigious Darwin-Wallace Medal in 2008. In 2009, she was appointed Dame Commander of the Order of the British Empire (DBE), while also receiving the Croonian lectureship from the Royal Society. In March 2009, the UKRC announced Dame Linda as one of six Women of Outstanding Achievement in Science, Engineering and Technology. She was awarded with Foreign Honorary Membership from the American Academy of Arts and Sciences in 2010. She has been awarded Honorary Degrees (DSc) from the University of Bath in 2011, the University of Oxford, the University of Brighton, Imperial College London and the University of Kent.

David Kipling

Title:

Professor at Cardiff University, Co-chair: CASciOPe:
Cardiff Ageing Science and Older People network

Bio:

Kipling is a Non-Clinical scientist, originally trained as a Zoologist at Cambridge University before doing a DPhil in the Zoology Department at Oxford University on DNA replication in yeast. He then moved to the MRC Human Genetics Unit in Edinburgh where he worked as a postdoctoral lab scientist on various aspects of chromosome biology, especially telomeres and centromeres. He moved to Cardiff to study the role of telomeres in cell division counting, as relevant to both ageing and cancer.

Kipling is very active at a strategic level in the UK with regard to ageing research, in particular with BBSRC, the Babraham Institute, and the British Society for Research on Ageing. His own career has been via the route of gaining personal Fellowship awards (Beit and then Lister Institute of Preventive Medicine) and he has been interested in issues surrounding career structure and progression in biomedical research, including the competing demands of research and teaching/clinical practice.

Education and qualifications

- University of Oxford, Zoology, 1986 – 1989
- University of Cambridge, BA, Natural Sciences, 1983 – 1986



Paul Keith Potter

MRC

Mammalian
Genetics Unit



Title:

Mammalian Genetics Unit, MRC Harwell · Disease Model Discovery

Bio:

Diseases associated with ageing pose an increasing social and financial burden on society and represent a vital imperative for biomedical research. We are undertaking the first large-scale project to investigate the interaction between genetic variation and the pleiotropic effects of ageing. The emphasis will be on the exploration of the phenotype space in ageing mouse mutant populations providing us with the opportunity to: identify genes and pathways involved in age related disease.

- MRC Harwell, Mammalian Genetics Unit Oxfordshire, United Kingdom, Position: Group Leader (2010-present)
- MRC Harwell, Mary Lyon Centre Oxford, United Kingdom, Position: Head of Mutagenesis (Nov 2007 - Sep 2010)
- MRC Harwell, Mary Lyon Centre Oxfordshire, United Kingdom, Position: Deputy Scientific Manager (Nov 2006 - Oct 2007)
- Imperial College London, Department of Medicine London, United Kingdom, Position: Research Associate (Oct 1999 - Oct 2006)

Education and qualifications

- Royal Post Graduate Medical School; Immunology (1989 - 1994)
- Imperial College London, Biochemistry (1984 - 1987)

Appointments

- Honorary Senior Lecturer, Renal Unit Imperial College (Aug 2012)
- Honorary Senior Lectureship, Kennedy Institute of Rheumatology, Imperial College (Aug 2009)

Rabbi Julia Babette Sarah Neuberger



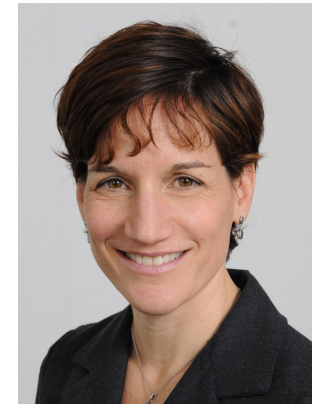
<p>Title:</p>	<p>Board Member of VHI Ireland, Chair of the Review Liverpool Care Pathway and a Vice President of Dimbleby Cancer Care.</p>
<p>Bio:</p>	<p>Baroness Neuberger is a member of the British House of Lords. She formerly took the Liberal Democrat whip, but resigned from the party and joined the Crossbenches in September 2011 upon becoming the full-time senior rabbi to the West London Synagogue. Having gained her life peerage in 2004, Lady Neuberger served as a Liberal Democrat Health spokesperson from 2004 to 2007.</p> <p>She was then appointed as the government’s champion of volunteering and proceeded to serve on a number of Science and Technology Committees and Sub-Committees from 2007 to 2012; the Draft Human Tissue and Embryos Bill Joint Committee in 2007; and a Sub-Committee on Social Policies and Consumer Protection from 2005 to 2008. Beyond politics, Lady Neuberger has held various positions in the public and voluntary sectors.</p> <p>These include Chair of the Camden and Islington Community Health Services NHS; Vice President of the Patient’s Association; Chair of the Commission on the Future of Volunteering; Chief Executive of the King’s Fund; and Member of both the Medical Research Council and the General Medical Council. She is still a Board Member of VHI Ireland, Chair of the Review Liverpool Care Pathway and a Vice President of Dimbleby Cancer Care.</p> <p>Lady Neuberger has also found time to establish herself as a respected author on subjects including decision-making in the NHS, ethics in healthcare and morality in healthcare.</p>
<p>Education and qualifications</p>	<p>She attended South Hampstead High School and Newnham College, Cambridge, where she studied Assyriology at first. After she was refused entry to Turkey because she was British and to Iraq, because she was Jewish, she had to change her subject and started studying Hebrew, her subsidiary language, full-time. Her lecturer at Cambridge, Nicholas de Lange, suggested she should become a rabbi. She obtained her rabbinic diploma at Leo Baeck College, London, where she taught from 1977–97.</p>

John Speakman



Title:	Head of Integrative Physiology at the University of Aberdeen, 1000 talents 'A' professor at Chinese Academy of Sciences
Bio:	<p>John Speakman is a British biologist working at the University of Aberdeen, Institute of Biological and Environmental Sciences, for which he was Director from 2007 to 2011. He leads the University's Energetics Research Group, which is one of the world's leading groups using doubly labeled water (DLW) to investigate energy expenditure and balance in animals.</p> <p>Speakman is well known for his work on obesity, in particular for criticising a long-established theory for obesity known as the thrifty gene hypothesis. With Aberdeen colleague Ela Krol, among others, he has published a series of over 20 papers in the Journal of Experimental Biology, known as the 'limits' series, which culminated in a novel hypothesis that animal energy expenditure is limited by the capacity to dissipate body heat.</p> <p>He was the first non-Chinese recipient of a 'Great wall' professorship from the CAS-Novonordisk Foundation (2011) and in 2015 was the first Briton ever to be awarded the Chinese Academy of Sciences medal for International cooperation.</p> <p>Speakman writes a monthly popular science column for the magazine 'Newton' (translated into Chinese by an ex-student Lina Zhang) and has also published two popular science books consisting of the compiled English versions of these articles.</p>
Education and qualifications	<ul style="list-style-type: none">• The University of Stirling, Doctor of Science, Animal Energy Balance, 2009• University of Aberdeen, Doctor of Science, Animal energetics, 1997• The University of Stirling, Doctor of Philosophy (PhD) Animal energetics, 1980 – 1984• The University of Stirling, Bachelor of Science (BSc) in Biology and Psychology, 1976 – 1980
Appointments	He was awarded Doctor of Science (DSc) degrees by both the University of Aberdeen (1996) and University of Stirling (2009). In 2016 he received a Royal Society Wolfson Research Merit Award from the Royal Society of London.

Suzanne Wait



Title:	Research Fellow at the School of Public Policy, University College London. Advisor at the International Longevity Centre-UK
Bio:	<p>Suzanne Wait, PhD is a Managing Director of The Health Policy Partnership. Over the past 15 years, she has helped run a number of multi-stakeholder policy initiatives, covering topics such as hepatitis, diabetes, immuno-oncology, stroke prevention and cardiovascular disease. The challenge of inter-sectoral and multidisciplinary working has been a focal thread across all her work, as well as the need for sustainable and patient-focused healthcare systems.</p> <p>Suzanne Wait was Director of Research at the ILC-UK as from January 2004 until December 2007. She is a Research Fellow at the School of Public Policy, University College London, and runs a consultancy (SHW Health) which provides health policy and health outcomes advice to private and public sector clients. Her past experience include roles in consulting, policy advice, teaching, and outcomes research within the pharmaceutical industry in Europe and internationally.</p> <p>She is currently an Advisor, at the International Longevity Centre-UK (ILC-UK), a London-based registered charity, and was a founding member and trustee of European Nutrition for Health Alliance, a non-profit collaboration aimed at raising awareness of malnutrition in Europe. She is a Member of the Coalition to Eradicate Viral Hepatitis in Asia Pacific (CEVHAP).</p>
Education and qualifications	Suzanne has a Master's of Public Health from Columbia University and a PhD in Public Health from the University of Strasbourg.

Jon Date



Title:	Head of External Affairs at International Longevity Centre - UK
Bio:	I have managed a number of successful campaigns that have mobilized tens of thousands of supporters and influenced politicians, regulators and businesses. My role involves planning campaign strategies, engaging with MPs, regulators and other stakeholders, and managing the delivery of campaigns through working with others across the organisation.
Education and qualifications	University of Oxford BA (Hons) - 2.1 Philosophy, Politics and Economics

Top Longevity Scientists and Experts



Paul Thornalley



Janet Thornton



Manlio Vinciguerra



Thomas von Zglinicki



William Bains



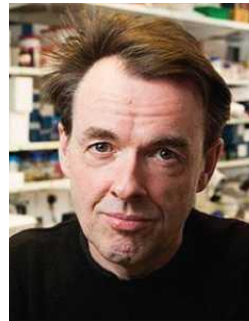
Richard Barker



Richard Faragher



Robert Freitas



David Gems



Andrew Krentz



Aisling Burnand



J. P. de Magalhaes



Anne McArdle



Cleo Bishop



Dr Richard Siow



John Pattison



Maggie Throup



Peter Adams



Janet M. Lord



Colin Blakemore



**Sally-Marie
Bamford**

Paul Thornalley

Warwick
Medical School



Title: Professor of Protein Damage and Systems Biology at University of Warwick

Bio: Paul Thornalley is a biomedical researcher and research team leader working in translational medicine, diet and health, development of functional foods and pharmaceuticals and systems biology. He leads research on the formation of the reactive dicarbonyl metabolite methylglyoxal and its metabolism by the glyoxalase system in human health and disease.

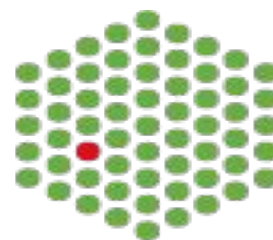
Accumulation of methylglyoxal – dicarbonyl stress – is a new type of metabolic imbalance that is providing improved understanding of disease, health decline in ageing and new routes to treatment. The key enzyme of this system, glyoxalase 1 (Glo1), is now a target for Glo1 inducer development as active agents of functional foods for healthy ageing – particularly to counter development of diabetes, obesity and cardiovascular disease, and pharmaceuticals for treatment of vascular complications of diabetes – particularly diabetic renal disease, renal failure, neurological disorders and other disease. Glo1 inhibition is a strategy for development of novel antitumour agents. Increased Glo1 copy number occurs in refractory tumours is associated with multidrug resistance (MDR) and sensitivity to Glo1 inhibitors. Glo1 inhibitor therapy would likely active particularly against MDR breast cancer and lung cancer. I have experience in cellular, pre-clinical and clinical studies. I lead a multidisciplinary team of biomedical and clinical investigators.

Paul Thornalley has published 260 peer-reviewed articles and 190 conference papers with h-factor 63. He collaborates with leading experts in biomedical research worldwide and partners in the food and pharmaceutical industries.

Education and qualifications

- University of Oxford, DPhil Biochemistry (1979 – 1982)
- The University of Manchester, BSc Chemistry (1976 – 1979)

Janet Thornton



Title:	Director Emeritus of EMBL-EBI and Senior Scientist
Bio:	<p>Professor Dame Janet Thornton was Director of EMBL-EBI from October 2001 to June 2015, and played a key role in ELIXIR, the pan-European infrastructure for biological data, since its inception. Her research group focuses on understanding protein structure, function and evolution using computational approaches. Professor Thornton is a Fellow of the Royal Society, a Fellow of the Academy of Medical Sciences, a member of EMBO and a foreign associate of the US National Academy of Sciences. Thornton was Director of the European Bioinformatics Institute (EBI) from 2001 to 2015, on the Wellcome Trust Genome Campus at Hinxton near Cambridge. She was an organiser of the Intelligent Systems for Molecular Biology (ISMB) and European Conference on Computational Biology (ECCB) joint Conference in Glasgow in 2004.</p> <p>Thornton's work is highly interdisciplinary, interfacing with structural biology, bioinformatics, biological chemistry and chemoinformatics, amongst others. She was an early pioneer in structure validation for protein crystallography, developing the widely used ProCheck software. Together with Christine Orengo, she introduced the CATH classification of protein structure.</p>
Education and qualifications	After a physics degree from the University of Nottingham, she completed her PhD at the UK NIMR before post doctoral studies at Oxford. She then held a joint appointment at University College London and the Bernal Chair in the Crystallography Department at Birkbeck College.
Appointments	Thornton was elected Fellow of the Royal Society (FRS) in 1999. She became a member of the European Molecular Biology Organisation (EMBO) in 2000, a foreign associate of the US National Academy of Sciences in 2003, and a Fellow of the Academy of Medical Sciences (FMedSci) in 2014. Thornton is an Supernumerary Fellow of Churchill College, Cambridge. She was furthermore made an Honorary Fellow of the Royal Society of Chemistry (HonFRSC) in 2017. The Times named Thornton number 86 of their "Eureka 100" British scientists in 2010.

Manlio Vinciguerra



Title:	University College London, Division of Medicine, Faculty Member. Founder and CSO of P4LifeTech
Bio:	<p>Manlio Vinciguerra is a Principal Investigator at the International Clinical Research Center (ICRC), Brno, Czech Republic.</p> <p>Previously he held a position of Senior Lecturer at the Institute for Liver and Digestive Health at the University College London (UCL), London, United Kingdom. Vinciguerra unraveled important cellular signaling and epigenetics mechanisms involved in metabolic and infectious processes, stress and aging in the heart and in the liver, such as PI3K/AKT/mTOR pathway and sirtuins, using a systems biology approach in cells and rodent models.</p> <p>He is a member of Who's Who in Gerontology. Principal Investigator in epigenetics, nutrition and gastroenterology. He is the founder and CSO of P4LifeTech</p>
Education and qualifications	He received his PhD in Internal Medicine (2004) and research training at the University of Geneva, Switzerland, and at the European Molecular Biology Laboratory (EMBL), in Italy and in Germany (2005-2011). He obtained a degree in Biomolecular Sciences from the University of Catania, Italy, in 1999.

Thomas von Zglinicki



Title:	Professor of Cellular Gerontology. Deputy Director: Science, Newcastle Institute for Ageing.
Bio:	<p>Thomas von Zglinicki is a founding member of the basic biology branch of the Newcastle Ageing Institute and its present scientific director. His principal research interest is in understanding the cellular and molecular signaling pathways connecting DNA damage responses (specifically emanating from dysfunctional telomeres) with mitochondrial function and metabolism, thus causing and maintaining cell senescence, and how these contribute to organism ageing.</p> <p>He was the first to discover oxidative stress and resulting DNA damage as a major cause of telomere shortening and to propose telomere length as a biomarker of ageing in humans. He chairs the Scientific Advisory Board (SAB) of the Leibniz Institute for Environmental Medicine Dusseldorf (Germany) and is a member of the Mayo Clinic Robert and Arlene Kogod Center on Aging SAB. He published over 200 papers on cell and molecular biology of ageing, resulting in an h-index of 50.</p> <p>Professor von Zglinicki came to Newcastle University in 2000 because it had shown the foresight to develop excellent research facilities for studying the biology of ageing that he was unable to find at that time in his native Germany. His work has since made a big contribution to the University's growing global reputation across the whole ageing agenda.</p>
Appointments	He is a Trustee of the Seneca Award for Ageing Research of the Industry Club Dusseldorf and serve on the editorial boards of Aging Cell, Aging (Albany) and other journals in the field.

William Bains



Title:

CSO/Founder at Five Alarm Bio Ltd. Researcher in Cambridge

Bio:

William is an academic and entrepreneur. After an academic career in UK and the USA, he joined PA Consulting Group in 1988, and Merlin Ventures in 1996. In 1999 William founded Amedis Pharmaceuticals Ltd, (which was later acquired by Paradigm Therapeutics).

He has founded four other biotech companies, has helped create over 10 others, helping to raise over £60M in earlystage funding for UK biotech start-ups, as well as sitting on the Advisory Boards of the SULIS Fund, Icení Fund and Bath Ventures. William also runs Rufus Scientific, helping entrepreneurs, Universities and start-ups identify how to generate value from visionary science and technology.

William continues to be engaged in research at MIT, where he is a visiting scientist researching astrobiology, and as founder and CSO of Five Alarm Bio Ltd..

He is author of over 100 papers on subjects as diverse as drug chemistry, company law and extraterrestrial life, and four books, including Venture Capital and the European Biotechnology Industry (2008), and teaches company creation and entrepreneurship in postgraduate courses at Cambridge University and the University of Warwick.

Education and qualifications

- University of Oxford. MA Biochemistry (1975 – 1979)

Richard Barker

**Title:**

Director of the Centre for the Advancement of Sustainable Medical Innovation (CASMI)

Bio:

Dr. Barker was formerly Director General of the Association of the British Pharmaceutical Industry (ABPI), a pharmaceutical industry trade association in the United Kingdom, from 2004 to 2011, and served on the Board and Executive Committee of the European Federation of Pharmaceutical Industries and Associations (EFPIA) and as a Council Member of the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA).

Dr. Barker is currently director of the Centre for Accelerating Medical Innovations, a member of the Board of iCO Therapeutics, Inc., a Canadian biotech company, Chairman of Stem Cells for Safer Medicine, a public-private partnership using technology to improve drug safety, Founder and Chairman of the Athenaeum Group, an organization devoted to more effective and efficient pharmaceutical research and development among clinicians, industry leaders and regulators, as well as a senior advisor of Aegate, Ltd., an authentication and traceability service for the pharmaceutical industry.

As an experienced healthcare leader and strategist with a distinguished career in the healthcare sector, Dr. Barker brings to his service as a director more than 20 years' experience in the healthcare industry in which he held a range of senior leadership roles in the United States, the United Kingdom and elsewhere internationally. His career has spanned the pharmaceutical, biotechnology and medical informatics sectors, thus giving him a broad perspective on the issues facing both healthcare systems and the pharmaceutical industry.

Richard Faragher



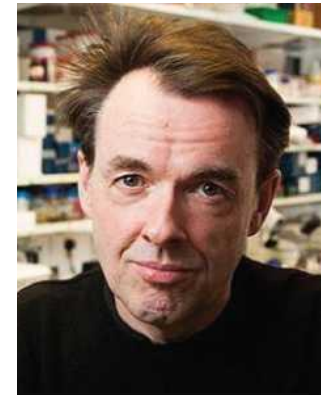
Title:	Professor of Biogerontology at the University of Brighton
Bio:	<p>Richard Faragher is Professor of Biogerontology at the University of Brighton and is past Chair of both the British Society for Research on Ageing and the International Association of Biomedical Gerontology. He is the first British citizen to be elected to the Board of Directors of the American Federation for Aging Research (AFAR), the leading US non-profit organisation supporting and advancing healthy aging through biomedical research.</p> <p>His primary research interest is in uncovering the causal mechanisms driving the human ageing process and in translating that knowledge into effective interventions which will improve the wellbeing of older people. His particular interest is the phenotype of “senescent” cells. These are cells which can no longer divide, frequently as a result of tissue turnover through life, and which accumulate in mammalian tissue. It has been shown that the deletion of these cells in animal models improves multiple markers of health, opening radical prospects for the improvement of human health in the future.</p>
Education and qualifications	Biochemistry at Imperial College, London. PhD at the University of Sussex. He joined the University of Brighton in 1994 as a post doctoral researcher looking at the growth and adhesion of cells to novel biomaterials.
Appointments	In July 2016, Richard received the highest honour of the British Society for Research on Ageing (BSRA) - the Lord Cohen of Birkenhead Medal for services to gerontology. The BSRA is the oldest scientific society in the world devoted to researching the biology of ageing.

Robert Freitas



Title:	Senior Research Fellow, Institute for Molecular Manufacturing
Bio:	<p>Robert A. Freitas Jr. published the first detailed technical design study of a medical nanorobot ever published in a peer-reviewed mainstream biomedical journal and is the author of Nanomedicine, the first book-length technical discussion of the medical applications of nanotechnology and medical nanorobotics.</p> <p>Volume I was published in October 1999 by Landes Bioscience while Freitas was a Research Fellow at the Institute for Molecular Manufacturing (IMM) in Palo Alto, California. Freitas published Volume IIA in October 2003 with Landes Bioscience while serving as a Research Scientist at Zyvex Corp., a nanotechnology company headquartered in Richardson, Texas during 2000-2004.</p> <p>Freitas is now completing Nanomedicine Volumes IIB and III and is also consulting on diamond mechanosynthesis, molecular assembler design, and nanofactory implementation as Senior Research Fellow at IMM. Freitas created the sentience quotient (SQ) concept in 1977-78 as a way to describe the information processing rate in living organisms or computers.</p>
Education and qualifications	Freitas holds a 1974 Bachelor's degree majoring in both physics and psychology from Harvey Mudd College, and a 1978 Juris Doctor (J.D.) degree from Santa Clara University School of Law.
Appointments	He won the 2009 Feynman Prize in nanotechnology for theory, the 2007 Foresight Prize in Communication, and the 2006 Guardian Award from Lifeboat Foundation, and was awarded the first patent on diamond mechanosynthesis on 30 March 2010.

David Gems



Title:	Assistant Director of the Institute of Healthy Ageing. Professor of Biology of Ageing at University College London
Bio:	<p>Professor David Gems is a British geneticist and biogerontologist. He is Professor of Biology of Ageing at University College London where he is also Deputy Director of the Institute of Healthy Ageing.</p> <p>His work concerns understanding aging through the genetics of <i>C. elegans</i>. He is the Assistant Director of the Institute of Healthy Ageing within which his own laboratory studies ageing using the model organism <i>C. elegans</i>.</p>
Education and qualifications	Gems went to the University of Sussex, graduating in 1983 with a BSc in Biochemistry. After graduation in 1983, Gems pursued various work in Costa Rica, Nicaragua, Mexico and USA. It is alleged that during his time in Nicaragua, Gems associated with the Sandinista National Liberation Front.
Background:	<ul style="list-style-type: none">• 2012- Professor of Biogerontology, Institute of Healthy Ageing, UCL• 2005-2011 Reader in the Biology of Ageing, Department of Biology, UCL• 1997-2004 Royal Society University Research Fellow, Department of Biology, University College London, U.K. Genetics of aging in <i>C. elegans</i> and other model organisms• 1993-1996 Postdoctoral fellow, Molecular Biology Program, University of Missouri, with Prof. Don Riddle. Genetics of aging in <i>Caenorhabditis elegans</i>• 1991-1993 Postdoc, Department of Biology, Imperial College, London, with Prof. Rick Maizels. Biology of infective larvae of the ascarid nematode parasite <i>Toxocara canis</i>• 1987-1990 Ph.D., Institute of Genetics, University of Glasgow, U.K. <i>Aspergillus nidulans</i> genetics. With A.J. Clutterbuck• 1984-1986 Various work in Costa Rica, Nicaragua (Sandinista regime), Mexico, USA• 1980-1983 School of Biological Sciences, University of Sussex, U.K. B.Sc. Biochemistry• 1974-1978 Dartington Hall School

Andrew Krentz

METABOLIC INTELLIGENCE



Title:	Chief Medical Officer & Founding Director at Metabolic Intelligence
Bio:	<p>Dr. Krentz is the author of a number of well-received textbooks on diabetes and vascular medicine and has published more than 150 original articles, reviews, editorials, and book chapters. Currently he is an associate editor for Diabetic Medicine (the official journal of Diabetes UK) and has served on editorial boards of the British Journal of Diabetes & Vascular Disease; Diabetes & Vascular Disease Research; Diabetes, Obesity & Metabolism; Drugs; Drugs & Aging and Treatments in Endocrinology.</p> <p>Dr. Krentz's expertise in metabolic and vascular medicine is reflected by his membership of several prominent national and international scientific societies. In the UK he is a council member of the Lipids, Metabolism & Vascular Disease Section of the Royal Society of Medicine. He is an elected member of the British Hypertension Society and is accredited as a clinical specialist in hypertension by the European Society for Hypertension. He is also a member of the European Group for the study of Insulin Resistance and the Diabetes and Cardiovascular Disease Study Group of the European Association for the Study of Diabetes.</p> <p>Dr. Krentz trained in metabolic medicine at leading academic institutions in the UK and US. After obtaining his MD thesis Metabolic Studies in Insulin Resistance from the University of Birmingham he expanded his research repertoire at the New Mexico School of Medicine in Albuquerque. He pursued his clinical academic career as Consultant Physician in Diabetes and Endocrinology at Southampton University Hospitals and Honorary Senior Lecturer at the University of Southampton before returning to the US to take up a British Heart Foundation International Research Fellowship at the University of California San Diego.</p>
Education and qualifications	

Aisling Burnand



Title:	Chief executive of the Association of Medical Research Charities
Bio:	<p>Aisling Burnand has been the chief executive of the AMRC since September 2014.</p> <p>Aisling began her career in communications, working mostly in the private sector. She headed international media relations for Rhône-Poulenc and was a director at the Rowland Company. She joined the BioIndustry Association (BIA) as its first director of public affairs in 1998, before becoming chief executive in 2003. At the BIA she championed UK biosciences, leading on issues including regenerative medicine and animals in research. In 2007 Aisling received an MBE for services to science.</p> <p>In 2009 Aisling joined Cancer Research UK, where she was executive director of policy and public affairs. During her tenure the charity secured the implementation of point of sale legislation preventing children from viewing cigarettes in shops, and the Sunbeds Act to protect young people from the dangers of sunbeds.</p> <p>Since 2012 Aisling has run DNA Coaching providing support for senior leaders in business and the not for profit sector.</p> <p>She is a Trustee of LifeArc, has been a Trustee of Campaign for the Advancement of Science and Engineering (CaSE) (2011- 2017) and is currently a member of: the UK Clinical Research Collaborative (UKCRC), Research Advisory Group to NHS Digital, OSCHR Sub board on BioInformatics, Life Science Industry Strategy Board, Brexit Health Alliance, and the Brain Tumour Charity Patient Mandate group.</p> <p>In 2007 Aisling received an MBE for services to science.</p>
Education and qualifications	School Governor, St Joan of Arc School, Highbury, London Trustee, Advancement of Science and Engineering (CaSE), Science and Technology

Joao Pedro de Magalhaes



Title:	Senior Lecturer, University of Liverpool Principal Investigator, Integrative Genomics of Ageing Group
Bio:	<p>Joao Pedro de Magalhaes joined the Ageing and Stress Group at the University of Namur in Belgium. With Olivier Toussaint as his advisor, Magalhaes' work from 1999 to 2004 spanned molecular mechanisms of cellular senescence and responses to oxidative stress, evolutionary models of ageing, and analyses of gene networks.</p> <p>He then did a postdoc from 2004 to 2008 with George Church at Harvard Medical School. In this role with Church, Magalhaes helped develop high-throughput approaches for studying ageing, including computational tools and databases, statistical models of mortality, methods for cell-based RNAi screens, and comparative genomics methods for investigating the evolution of longevity.</p> <p>In 2008, Magalhaes joined the University of Liverpool to develop his own group on genomic approaches to ageing. The group was initially in the School of Biological Sciences (which later became the Institute of Integrative Biology), and is now in the Institute of Ageing and Chronic Disease.</p> <p>Among his many longevity-related scientific research projects, Magalhães has sequenced and analyzed the genome of the bowhead whale. And he has also contributed to analysis of the genome of the naked mole rat. Both of these mammals are exceptionally long-lived and exceptionally cancer-resistant.</p> <p>Joao Pedro de Magalhaes is also an affiliate Principal Investigator in the Neuroendocrinology and Aging Group at the University of Coimbra in Portugal.</p>
Education and qualifications	In 1999, he obtained his degree in Microbiology from Escola Superior de Biotecnologia. Under Olivier Toussaint, he obtained his PhD from the University of Namur in 2004.

Anne McArdle



Title:	Head of the Department of Musculoskeletal Biology II, University of Liverpool
Bio:	<p>Anne was appointed as Lecturer at the University of Liverpool in 2001 and as Professor in the Faculty of Health and Life Sciences at the University of Liverpool in 2007. She is currently acting Head of the Department of Musculoskeletal Biology II.</p> <p>Anne is past Chair of the British Society for Research on Ageing and the British Council for Ageing. She is an active member of the American Physiological Society and the UK Physiological Society and Biochemical Society. Professor McArdle is Associate Editor for the American Journal of Physiology, International Advisor on the Environmental & Exercise Physiology Committee of the American Physiological Society and a core member of BBSRC Grant Committee A. Professor McArdle's work on frailty has received considerable public interest with press releases and presentation of our applied work to the general public at several events. As School Director of Postgraduate Research, Anne led a complete overhaul of student monitoring and support procedures within the School which has led to substantial improvements in the student experience.</p> <p>Professor McArdle's research interests include the basic processes by which cells respond and adapt to stress and damage and in particular, the role that the age-related failure in the stress response plays in the development of age-related skeletal muscle dysfunction and has made key observations in this area of research. Her research group has demonstrated the importance of rapid induction of responses to the increased ROS generated by contractions in maintaining muscle viability and the role that attenuation of these ROS signals and responses play in muscle ageing. Anne has considerable experience of cell and molecular biological studies at the sub-cellular level through to physiological analysis of muscle function in a number of model systems including cell culture, animal models and in humans.</p>
Education and qualifications	Professor McArdle graduated with a BSc (Hons) in Biochemistry from the University of Liverpool in 1988 and completed a PhD in the Department of Medicine in 1993.
Appointments	Anne undertook postdoctoral training at the Institute of Gerontology at the University of Michigan and was awarded a Research into Ageing Queen Elizabeth the Queen Mother Fellowship in 1998 to examine the mechanisms by which the age-related failure of muscle to adapt to contractions resulted in sarcopenia.

Cleo Bishop



Title:	Senior Lecturer and Director for Graduate Studies at Queen Mary, University of London
Bio:	<p>Cleo received a PhD in Biological Sciences in 2001 from University College London. She then spent four years as a Career Development Fellow in the laboratory of Prof. Chris Higgins at the MRC Clinical Sciences Centre, Imperial College London, where she developed a keen interest in cancer biology.</p> <p>In 2006, she moved to the Blizard Institute to pursue this, spending four years in Prof. David Beach's group. During this time, she established our High-Throughput Screening facility, managed by Dr Luke Gammon, and has used this technology to discover novel regulators of the tumour suppressor p16.</p> <p>In 2010, Cleo was awarded a Lecturership and continues her research into the regulation of the p16 and its role in senescence, cancer and ageing.</p>
Education and qualifications	<ul style="list-style-type: none">• PhD in Biological Sciences in 2001 from University College London

Dr Richard Siow



Title:

Vice-Dean International, Faculty of Life Science and Medicine at King's College London

Bio:

Dr Siow is the Coordinator and Committee Chair of Ageing Research at King's (ARK), a cross-Faculty consortium of researchers taking a multidisciplinary approach to better understand the mechanisms of ageing and related diseases to improve health-span, clinical translation and the social impact of ageing.

The primary purpose of ARK is to enhance multidisciplinary research collaborations within King's to better understand the mechanisms of ageing and improving health-span. ARK is uniquely positioned to address the challenges of an ageing world, and to provide answers at multiple levels, from cellular mechanisms to social sciences.

Richard is a graduate of King's (BSc and PhD) and joined the Physiology Department as a Lecturer in 2001. Richard has championed the Partnership between King's and Unilever through his research collaborations with their global R&D Centres in UK, Netherlands, USA, India and China. He is engaged in King's international partnership activity including with academic institutions and industry in Germany, USA, India, China, Singapore and Taiwan. Richard has also established the King's India Summer Session at Unilever Bangalore, a unique international academic-industry educational initiative.

Education and qualifications

- King's College London, BSc, PhD Nutrition, Cardiovascular Physiology (1990 – 1996)

Prof. Sir John Pattison



Department
of Health



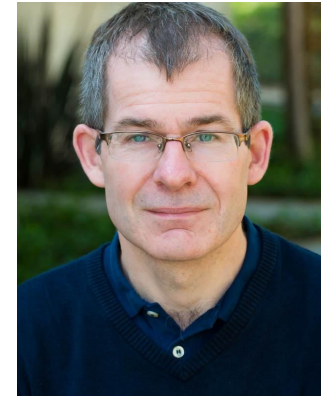
Title:	Formerly Director of Research and Development at the Department of Health in England
Bio:	<p>Formerly Director of Research and Development at the Department of Health in England, who is well placed to assess the health services' ability to deliver the changes emerging from health research findings.</p> <p>Between 1975 and 1977, he was Senior Lecturer in Virology at London Hospital Medical College at St. Bartholomew's Medical School; and from 1977 to 1984 Professor of Medical Microbiology at King's College Hospital Medical School. Since 1984 he has been Professor of Medical Microbiology at University College London, Dean of UCL Medical School (1990-1998) and is at present Vice-Provost of UCL. From 1992-1995 he was Chairman of the Physiological Medicine and Infection Board and a member of the Medical Research Council.</p> <p>He was a member of the Board of the Public Health Laboratory Service (1989-1995) and editor-in chief of <i>Epidemiology and Infection</i> (1980-1994). He is currently Deputy Chairman of the King's Fund Management Committee, Chairman of the Spongiform Encephalopathy Advisory Committee and senior medical advisor to the Medical Research Council.</p> <p>Sir John's own research interests have been concerned with aspects of medical virology, particularly rubella virus infection and original work on the identity and consequences of infection with the human parvovirus B19.</p>
Education and qualifications	Professor Sir John Pattison was educated at Barnard Castle School, the University of Oxford and the (then) Middlesex Hospital Medical School.

Maggie Throup



Title:	Chair of the All-Party Parliamentary Group (APPG) on Obesity, Heart Disease, and the secretary for the APPG on Human Trafficking and Modern Slavery.
Bio:	<p>Maggie Throup is a British Conservative Party politician. A former biomedical scientist, she was first elected as the Member of Parliament (MP) for Erewash in the 2015 general election. She was re-elected in the 2017 general election.</p> <p>After graduating she worked as a biomedical scientist at the Calderdale Health Authority for seven years. During her time there, she became a Fellow of the Institute of Biomedical Science specialising in haematology. She then pursued a career in marketing and public relations which included a directorship of a pharmaceutical company and running her own consultancy.</p> <p>She was employed as a director in the In-Vitro Diagnostics Division of a pharmaceutical company for ten years. She also has 19 years of experience as a business consultant, mainly in marketing based on quantitative and qualitative market research, and has run her own successful marketing consultancy since 1996.</p> <p>In addition to her professional successes, Throup has contributed to overseas development in Rwanda and held voluntary non-executive roles with Solihull-based charities, including Changes UK. She is a trustee of the Carers Centre as well as Drug Rehabilitation CIC, which she also chairs.</p>
Education and qualifications	Her early education was at the Bradford Girls' Grammar School. She graduated from the University of Manchester with a BSc. in Biology.
Appointments	In the 2015–17 parliament, she was part of the Health Select Committee and the Scottish Affairs Committee. Throup was re-elected onto the Health Select Committee. She is the chair of the All-Party Parliamentary Group (APPG) on Obesity, Heart Disease, and the secretary for the APPG on Human Trafficking and Modern Slavery.

Peter Adams



Title:

Epigenetics of Cancer and Ageing at University of Glasgow / Beatson Associate

Bio:

Dr. Adams most recently led the Epigenetics Unit at the Beatson Institute for Cancer Research and the University of Glasgow, Institute of Cancer Sciences, in Scotland. He has also held positions at Wistar Institute (University of Pennsylvania), Drexel University and Fox Chase Cancer Center in Philadelphia.

Peter D. Adams obtained his BA in biochemistry at the University of Oxford, England and his Ph.D. at Imperial Cancer Research Fund (now CR-UK). He did postdoctoral work with Dr. William G. Kaelin, Jr. at Dana-Farber Cancer Institute. Peter D. Adams is co-Editor-in-Chief of the journal *Aging Cell*.

The Adams lab investigates the impact of chromatin structure and epigenetics on cell proliferation, aging and cancer.

Education and qualifications

- 1993 Ph.D., Signal Transduction, Imperial Cancer Research Fund (CRUK), London, UK
- 1989 B.A., Biochemistry, Oxford University, England

Janet M. Lord



UNIVERSITY OF
BIRMINGHAM

Title:	Director of the Institute of Inflammation and Ageing
Bio:	<p>Janet's research focuses on the innate immune system, the body's front line defense against infection, and how the efficiency of this system is affected by ageing and stress, the latter including physical trauma and emotional stress such as bereavement. She is also interested in how the ageing of the immune system predisposes adults to chronic inflammatory diseases such as Rheumatoid Arthritis and COPD and the muscle wasting associated with age and these conditions.</p> <p>She researches the link between chronic systemic inflammation and physical frailty in old age and has published papers showing that much of the increased systemic inflammation and sarcopaenia associated with ageing can be prevented by high levels of physical activity in adulthood.</p> <p>In all of her work she aims to translate research findings into interventions, whether lifestyle (exercise, diet) or pharmacological, to improve immunity and health in old age. Professor Lord is also a leading member of the NIHR SRMRC, researching the impact of major trauma on the immune system and how this differs with age. Janet has published over 175 research papers and reviews in the fields of immune senescence, chronic inflammatory disease and neuroendocrineimmune biology. Her research is currently funded by grants from MRC, Arthritis Research UK, NIHR, The Healing Foundation, the European Commission and the Glenn Foundation.</p>
Education and qualifications	<ul style="list-style-type: none">• Professor of Immune Cell Biology• Fellow of the Academy of Medical Sciences 2015• PhD Biological Sciences 1983• BSc (Hons) Human Biology 1979
Appointments	<p>In 2013 she was awarded the Lord Cohen of Birkenhead medal for her outstanding research in human ageing by the British Society for Research in to Ageing. She was elected a Fellow of the Academy of Medical Sciences in 2015.</p>

Prof. Sir Colin Blakemore



**UNIVERSITY
OF LONDON**



Title:	Professor of Neuroscience & Philosophy at the University of London
Bio:	<p>Emeritus Professor at Oxford and former Chief Executive of the Medical Research Council, brings knowledge of the biological basis of ageing and of trends in medical research and practice that are likely to influence life expectancy. Taught in Cambridge (at the Physiological Laboratory and Downing College) for 11 years. Moved to Oxford in October 1979 to take up the Waynflete Chair of Physiology and a Professorial Fellowship at Magdalen. Held those positions until July 2007. From 1990-96 directed the McDonnell-Pew Centre for Cognitive Neuroscience and from 1996-2003 the Oxford Centre for Cognitive Neuroscience. Between 2003 and 2007 he was on Special Leave, serving as Chief Executive of the Medical Research Council and from 2007-12, he was Professor of Neuroscience in the University and a Supernumerary Fellow at Magdalen.</p> <p>In October 2012 he took up a newly created Professorship of Neuroscience & Philosophy at the School of Advanced Study, University of London, where he directed a Centre for the Study of the Senses. He is leading a project funded by the Arts and Humanities Research Council, which involves philosophers and cognitive neuroscientists working together to define key questions about human perception. In Oxford he maintains a research interest in the very early stages of development of the human embryonic brain. He is studying the way in which neurons are born, distribute themselves and form connections in the embryonic forebrain.</p> <p>He is currently serving on the Editorial Board of the journal Neuroscience of Consciousness.</p>
Education and qualifications	Studied Medical Sciences at University of Cambridge PhD at the University of California, Berkeley
Appointments	Blakemore has been honoured for his scientific achievements with prizes from many academies and societies, including the Royal Society, the Swiss Academy of Medical Sciences, the French Académie Nationale de Médecine, the Royal Australian and New Zealand College of Ophthalmologists, the Royal College of Surgeons in Ireland, the BioIndustry Association and the Royal College of Physicians.

Sally-Marie Bamford



Title:	Director of Strategy and Research at the International Longevity Centre - UK (ILC-UK)
Bio:	<p>Sally-Marie Bamford, Assistant Director of Research and Strategy joined the ILC-UK in March 2009, and has worked on a number of high profile research projects, including work for the Joseph Rowntree Foundation, Age UK and the Department of Health.</p> <p>Prior to joining the ILC-UK, Sally-Marie held a variety of posts in the charity and political sector, researching and writing on social care, workforce development and equality and human rights. She also worked in the European Parliament as an advisor and as a speech writer at the Equality and Human Rights Commission. Sally-Marie has a Masters in social policy and research and is a qualified NCTJ accredited journalist. Sally-Marie has a particular interest in equality and human rights for older people, dementia and older people with high support needs. This year Sally-Marie will be working on a number of projects, including dementia and prevention and health seeking behaviour across the generations.</p>
Education and qualifications	

UK Universities & Research Labs related to Longevity and GeroScience

Universities & Research Labs

- | | |
|---|--|
| <ol style="list-style-type: none">1. Ageing Research at King's2. Aston University Aston Research Centre for Healthy Ageing (ARCHA)3. Brunei University London Brunei Institute for Ageing Studies (BIAS)4. Positive Ageing Research Institute5. Lancaster University. Faculty of Health & Medicine Centre for Ageing Research (C4AR)6. University of Edinburgh Centre for Cognitive Ageing and Cognitive Epidemiology (CCACE)7. University of Liverpool Centre for Integrated Research into Musculoskeletal Ageing (CIMA)8. Newcastle University Centre for Integrated Systems Biology of Ageing and Nutrition (CISBAN)9. Centre for Research on Ageing (CRA)10. University Surrey Centre for Research on Ageing and Gender (CRAG) | <ol style="list-style-type: none">11. Clinical Ageing Research Unit (CARU)12. Glasgow Ageing Research Network13. Institute of Ageing and Chronic Disease Research14. Institute of Healthy Ageing (IHA)15. Manchester Institute for Collaborative Research on Ageing (MICRA)16. Medawar Centre for Healthy Ageing Research17. Oxford Institute of Population Ageing18. Salford Institute for Dementia19. UK Longevity Explorer (UbbLE)20. International Longevity Centre – UK (ILC - UK)21. NDORMS (Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences)22. The Alan Turing Institute23. Francis Crick Institute24. Integrative Genomics of Ageing Group25. Centre for Social Gerontology - Keele University |
|---|--|

Name:

Ageing Research at King's



About:

Ageing Research at King's (ARK) is a cross-faculty multidisciplinary consortium of investigators which brings together scholarship and research in ageing in several complementary areas. ARK represents King's world class excellence for research on the biology of ageing, from the basic mechanisms in biogerontology to clinical translation and the social impact of ageing. The primary purpose of ARK is to enhance multidisciplinary research collaborations within King's to better understand the mechanisms of ageing and improving health-span. As ageing consists of complex systems at the level of biology, psychology and society, in order to understand the processes of ageing and the nature of old age itself, it is important to bring together learning and research from a number of key disciplines. ARK is uniquely positioned to address the challenges of an ageing world, and to provide answers at multiple levels, from cellular mechanisms to social sciences. We aim to launch a new programme of events to foster research networking within King's as well as develop interactions with Research Councils, research charities, other academic institutions and industrial partners both in UK and globally, using ageing as a focus for building academic excellence.

Website:


<https://www.kcl.ac.uk/health/research/divisions/cross/ark/Ageing-Research-at-kings.aspx>


Based in:

London


Mission/Research
Topics:


N/A


Name:	Aston University Aston Research Centre for Healthy Ageing (ARCHA)	
About:	<p>They take a multidisciplinary approach to successful ageing by asking how technological, therapeutic and psychosocial strategies can be employed to understand and arrest age-related decline.</p> <p>Their mission is to facilitate research that helps understand, predict and prevent age-related degeneration. they have a specific focus on the eye, the mind, the metabolism and medicines and devices in the context of the psychological, social and policy factors affecting ageing lives.</p>	
Website:	http://www.aston.ac.uk/lhs/research/centres-facilities/archa/	
Based in:	Birmingham	
Mission/Research Topics:	<ul style="list-style-type: none"> • Ageing eye. Researchers work within an integrated investigative framework to advance significantly our understanding of the use, preservation and restoration of ocular function in the ageing eye. • Ageing mind. The aim of this cluster is to understand changes in cognitive function as we age and to use this information to design appropriate interventions that facilitate the maintenance of independent and active engagement. Understanding neural health and cognitive functioning facilitates the development of biological, technological or psychological tools to maintain cognitive performance in older people. • Ageing metabolism. Using tools from bioscience, psychology, sociology and engineering they seek a better understanding of how changes in metabolism are associated with the ageing process and how we can intervene to promote a healthy later life. • Medicine and devices in Ageing. This cluster aims to focus on the use of medicines and devices in older people. Medicines and devices have considerable potential to significantly improve outcomes and quality of life in older people. However, conversely, older people are particularly susceptible to the adverse effects of medicine and devices. • Ageing lives. The ageing process impacts our everyday lives in diverse ways. In this cluster, they examine how different individuals and communities are enabled or deterred from healthy ageing. They consider the delivery and impact of health and care policies, as well as attitudes and beliefs towards issues such as medicines management and keeping active. 	

Name:	<p>Brunei University London Brunei Institute for Ageing Studies (BIAS)</p> 
About:	<p>BIAS was developed as a Collaborative Research Network (CRN) in 2007 as part of a university initiative to encourage cross-disciplinary research activity. BIAS is one of four University CRNs which seek to address a great number of complex challenges of the future.</p> <p>The networks bring together teams of experts from across the university in order to:</p> <ul style="list-style-type: none"> • Foster interdisciplinary research of the highest quality • Spearhead new responses to major research questions • Increase the social, cultural and economic impact of research <p>Actively pursue partnerships and collaborations with universities, businesses and public sector organisations who share their goals.</p> <p>The Collaborative Research Network in Ageing was formed in response to challenges raised by a growing population, including concern for how current health and social systems will cope with an increase in the number of people over the age of 60. BIAS aims to lead in the development and definition of strategic directions for research in the field of gerontology. It seeks to address the information needs of policy makers and the private sector, and to facilitate the transfer of new knowledge for the benefit of the whole population.</p>
Website:	<p>http://www.brunel.ac.uk/research/centres/bias</p>
Based in:	<p>London</p>
Mission/Research Topics:	<p>N/A</p>

Name:	Positive Ageing Research Institute  Anglia Ruskin University
About:	<p>Professor Patricia Schofield, Deputy Dean of Research and Income Generation (Faculty of Health, Social Care & Education), leads PARI as our Director, supported by Deputy Directors Dr Diane Keeble-Ramsay and Dr Leslie Gelling. The institute brings together a multi-disciplinary team from: Health, Social Care & Education; Arts & Humanities; Science & Technology; Business; and Medical Science, representing diverse disciplines. Our common interests in ageing unite us and together with practitioners, local authorities, industry, and voluntary organisations we are developing existing projects and applying for further funding to support our research.</p>
Website:	https://www.anglia.ac.uk/health-social-care-and-education/research/research-groups/future-ageing-research-centre
Based in:	UK
Mission/Research Topics:	<p>PARI aims to support positive ageing and address ageing-related issues, including improving quality of life and fostering independent living. With our innovative technology-enabled health solutions we aim to support older people to manage their conditions that may result from the physical and biological processes of ageing. Through these innovations we aim to bring greater sustainability to technology-enabled health services, in order to create business opportunities and economic growth.</p>

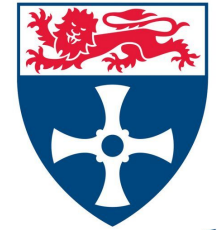
Name:	<p>Lancaster University. Faculty of Health & Medicine Centre for Ageing Research (C4AR)</p> <p style="text-align: right;">Health & Medicine  Lancaster University</p>
About:	<p>The Center on Demography and Economics of Aging (CoA), directed by Linda Waite, is one of eight research centers housed within the National Opinion Research Center (NORC) Academic Research Centers at the University of the Chicago. The CoA was established as an Exploratory Center in 1994 with a P-20 grant from the National Institute on Aging (NIA). The CoA aims to: (1) foster an exciting, dynamic intellectual environment for research in the demography and economics of aging; (2) provide research support services; (3) encourage the development of new research projects and research foci in the demography and economics of aging; and (4) support and facilitate the inclusion and analysis of biomeasures of health in new and ongoing projects at the University of Chicago and elsewhere. It provides support for research projects in four key areas: (1) social relationships, living arrangements, and family; (2) the social context of aging; (3) health care research; and (4) biobehavioral pathways. The Center operates using three cores, which facilitate and support an active program of research and training: (A) the Administration and Research Support Core, directed by Linda Waite, which provides general administrative support to Center associates; (B) the Program Development Core, directed by Kathleen Cagney, consisting of a program of small-scale and pilot projects and support for new faculty development in aging; and (C) the External Innovative Network Core, directed by Stacy Tessler Lindau, with a focus on biomarkers in population-based aging research. The Center supports a highly diverse faculty of 47 research affiliates in sociology, economics/business, the Pritzker School of Medicine, the School of Social Service Administration, and the Harris School of Public Policy. The research portfolios of faculty members draw upon expertise in medicine, epidemiology, and the biological and social sciences</p>
Website:	<p>http://www.lancaster.ac.uk/fhm/research/centre-for-ageing-research/</p>
Based in:	<p>Lancashire</p>
Mission/Research Topics:	<p>Neuro-generative diseases (Alzheimer’s Disease, Parkinson’s Disease)</p> <ul style="list-style-type: none"> • Molecular changes associated with the ageing process • Design and development of new technologies to support and enhance the health and wellbeing of older people and their care-givers

Name:	<p>University of Edinburgh Centre for Cognitive Ageing and Cognitive Epidemiology (CCACE)</p> 
About:	<p>The Centre for Cognitive Ageing and Cognitive Epidemiology at the University of Edinburgh (CCACE) focuses on the reciprocal influences of cognition and health across the human life course. The Centre is funded by the Medical Research Council (MRC) and the Biotechnology and biological Sciences Research Council (BBSRC).</p> <p>Scientific Objectives:</p> <ol style="list-style-type: none"> 1. Maintain, develop and exploit the unique long-term human cohort studies assembled in Scotland as new national resources to explore life course influences on cognitive ageing and pathways whereby cognitive ability in early life affects later health-cognitive epidemiology. 2. Advance knowledge by research into biological, neurological, genetic, social, economic, and psychological aspects of cognitive ageing in humans and life course mammalian model systems. 3. Develop and evaluate psychological, genetic, other biological, and brain imaging methods to assess, monitor, and prevent or ameliorate decline in mental functions with a view to providing a rational basis for translating this into potential interventions. 4. Build upon MSc courses unique to our Centre, exploiting the university's resources in innovative methods such as e-learning, to train an essential and novel kind of researcher capable of accessing the best technologies to maximise opportunities for working in multidisciplinary teams in cognitive aging and cognitive epidemiology across clinical and basic science.
Website:	<p>http://www.ccace.ed.ac.uk</p>
Based in:	<p>Edinburgh</p>
Mission/Research Topics:	<ul style="list-style-type: none"> • Cognitive epidemiology • Cognitive ageing • Mechanisms of cognitive ageing • Human and animal brain imaging • Genetics and statistics of brain ageing

Name:	<p>University of Liverpool</p> <p>Centre for Integrated Research into Musculoskeletal Ageing (CIMA)</p> 
About:	<p>The MRC-Arthritis Research UK Centre for Integrated research into Musculoskeletal Ageing (CIMA), is a collaboration between researchers and clinicians at the Universities of Liverpool, Sheffield and Newcastle. Established in 2012, CIMA aims to understand why our bone, joints and muscles function less well as we age, and why older people develop clinical diseases of these musculoskeletal tissues, such as arthritis or osteoporosis.</p> <p>The Centre brings together complementary and specialist expertise in skeletal muscle, bone, cartilage and tendon biology, ageing research, nutrition and exercise interventions, and clinical excellence in musculoskeletal disorders. Through an innovative, comprehensive and sustainable research programme, and through training the next generation of researchers, CIMA is developing an integrative approach to:</p> <ul style="list-style-type: none"> • Understand the processes and effects of ageing in tissues of the musculoskeletal system • Understand how ageing contributes to diseases of the musculoskeletal system • Understand how these processes may be ameliorated or prevented to help preserve the mobility and independence of older people.
Website:	<p>http://www.cimauk.org</p>
Based in:	<p>Liverpool</p>
Mission/Research Topics:	<ul style="list-style-type: none"> • Skeletal muscle, bone, cartilage and tendon biology • Ageing research • Nutrition and exercise interventions • Clinical excellence in musculoskeletal disorders

Name:

Newcastle University
Centre for Integrated Systems Biology of
Ageing and Nutrition (CISBAN)



About:

CISBAN is a multidisciplinary research centre within Newcastle University. It is particularly closely associated with the Institute for Ageing and Health, with which it shares buildings on the Campus for Ageing and Vitality. Its staff members come mainly from the Faculty of Medical Sciences, the School of Computing Science and the School of Mathematics and Statistics.

Their research aims to develop an understanding of the biology of ageing and ageing-related diseases using a systems approach. The way nutrients are used by the body and what nutrients are consumed have been implicated as major influences on longevity.

However, there are multiple causes and mechanisms of ageing. Each mechanism may make only a modest contribution to the whole. By taking a systems-wide approach, CISBAN seeks to capture the whole picture of what drives the ageing process, not simply a limited view of the contributing factors.

In addition to traditional and high throughput laboratory techniques, CISBAN uses a number of modelling and software systems. Very large amounts of data are generated through a range of experimental studies and analysed in silico. This process provides a highly dynamic cycle of interaction between theoretical and experimental activity.

Website:


<http://www.ncl.ac.uk/cisban/>


Based in:


Newcastle upon Tyne

Mission/Research
Topics:

- Cell senescence
- Dietary restriction
- Modelling
- Software development (e.g.: Saint, SyMBA)
- Other projects (e.g.: Oxidative stress and telomerase in stem cells)

Name:	Centre for Research on Ageing (CRA) 
About:	<p>Population ageing brings new challenges for individuals and policymakers alike. Understanding ageing over the life course is at the heart of such challenges.</p> <p>The Centre for Research on Ageing examines key issues in ageing across the life course. Their members of staff are engaged in high-quality postgraduate teaching in gerontology and cutting-edge research in the field. They offer postgraduate programmes, face-to-face or by distance learning, which equip students with substantive knowledge of policy-relevant issues in gerontology and with quantitative and qualitative research methods training.</p> <p>Through high quality research, the Centre contributes to a better understanding of the experience of ageing amongst different groups and societies, which will in turn place us in a better strategic position to improve the quality of life of older people.</p> <p>In addition to research, the Centre contributes to capacity building of future academics and professionals by teaching different postgraduate programmes in Gerontology.</p>
Website:	https://www.southampton.ac.uk/ageing/index.page
Based in:	Southampton
Mission/Research Topics:	<ul style="list-style-type: none"> • Ageing in developing and transitional societies • Diversity in later life and the ageing of ethnic minority communities • Economic and social resources in old age • Inequalities in later life, particularly with respect to health and access to health and social care services • Quality of life • Retirement prospects of future generations of elders • Social networks and informal support • Developing a range of tools for policy analysis

Name:	<p>University Surrey Centre for Research on Ageing and Gender (CRAG)</p> <p style="text-align: right;">CRAG <small>Centre for Research on Ageing and Gender</small></p> 
About:	<p>The Centre for Research on Ageing and Gender (CRAG) brings together social scientific expertise to conduct policy relevant research on gender and ageing and their intersection with other forms of social division, identity and (in)equality. CRAG focuses specifically on the intersections between gender and ageing, in addition to other aspects of social division, identity and inequality, such as sexuality, social class and ethnicity.</p> <p>The principal aim is to advance understanding of how gender influences the experience of ageing, and how ageing influences gender roles and relationships.</p>
Website:	<p>https://www.surrey.ac.uk/sociology/research/researchcentres/crag/</p>
Based in:	<p>Guildford</p>
Mission/Research Topics:	<ul style="list-style-type: none"> ● Undertaking research on gender and ageing. CRAG members have expertise in a range of research methodologies, including qualitative research, evaluation research, and secondary analysis of large national data sets ● Collaborating on interdisciplinary projects with psychologists, nutritionists, economists, biomedical scientists, and health specialists ● Taking an holistic approach, which emphasises the interconnections between health, income and material resources, and social roles and relationships, and how these vary according to gender difference and diversity ● Adopting a life course approach, which links socio-economic position, roles and relationships in later life to the earlier biographies and intersectionality, which addresses multiple axes of inequality, power and privilege ● Encouraging scientific exchange through honorary visiting research positions for international scholars. In Spring 2015 CRAG was delighted to host Professor Mark Hughes, Southern Cross University, Australia ● Providing opportunities for doctoral research students in a stimulating research environment ● Collaborating with user groups, activists and advocates concerned with the well-being of all older people ● Organising and participating in conferences, seminars and workshops which disseminate research findings to the academic community, professional groups and wider publics ● Developing a media profile for exchange and dissemination of information and research findings.

Name:	Clinical Ageing Research Unit (CARU) 
About:	<p>The Clinical Ageing Research Unit (CARU) is a £5.5 million clinical research facility funded by the Wellcome Trust and Wolfson Foundation. They opened in September 2008 and are located on the University's Campus for Ageing and Vitality. Their primary aim is to facilitate the development of early assessment and intervention strategies targeted at age-associated degenerative conditions.</p> <p>They provide a high quality, patient-friendly environment for phase II-IV clinical studies in the older patient. They employ experienced research nurses with specific training in commonly used, relevant assessment instruments.</p> <p>Clinical trials are supported by a high quality research infrastructure, embedded within the joint Acute Trust-University research system, with a study coordinator and data manager located on site.</p> <p>The Newcastle upon Tyne Hospitals NHS Foundation Trust and Newcastle University were jointly awarded the NIHR Newcastle Biomedical Research Centre (BRC) status by the National Institute for Health Research. The NIHR Newcastle Biomedical Research Centre aims to improve the lives of the growing number of older people through translational research into ageing syndromes and long-term conditions. Research themes comprise dementia, liver disease, musculoskeletal Disease, neuromuscular disease, skin and oral disease.</p>
Website:	http://www.ncl.ac.uk/caru/
Based in:	Newcastle upon Tyne
Mission/Research Topics:	<ul style="list-style-type: none"> • Dementia and neurodegenerative diseases • Stroke and cardiovascular ageing • Musculoskeletal disease • Visual failure • Type 2 Diabetes • Liver disease • Mitochondrial disease

Name:	<p>Glasgow Ageing Research Network</p>  <p>University of Glasgow</p>
About:	<p>Ageing research at the University of Glasgow is varied and cutting edge; scientists from a wide range of disciplines use state-of-the-art approaches to understand the causes and consequences of ageing. The Glasgow Ageing Research Network brings these diverse approaches together with a group of researchers committed to pursuing inter-disciplinary approaches to ageing research. Combining our strengths in clinical research, ecology and evolutionary biology, molecular and cellular biology, chemistry, engineering, psychology and social science, the Glasgow Ageing Research Network explores all the facets of ageing, from the mechanisms underlying it to how ageing impacts on the lives of people and animals.</p>
Website:	<p>https://www.gla.ac.uk/researchinstitutes/bahcm/research/sigs/garner/</p>
Based in:	<p>Glasgow</p>
People:	<p>The Glasgow Ageing Research Network has members from across the Colleges of Medical Veterinary and Life Sciences, Social Sciences, and Science and Engineering of the University of Glasgow. Our activities fall roughly into three themes, Diseases of Ageing, Healthy Ageing Across the Life Course, and Mechanisms, Biomarkers and Comparative Medicine of Ageing. To find out who is working in each of these areas, please explore our member information below.</p>

Name:

Institute of Ageing and Chronic Disease Research



About:

The Institute of Ageing and Chronic Disease is using world-class research to improve the quality of life of millions of people on an international scale. They want to understand the mechanisms of ageing - from the cellular to the muscular skeletal - to find the ways to delay its onset, and to mitigate its effects. Understanding how and why aging happens leads to an understanding of how to intervene.

They are finding new insights into musculoskeletal biology and eye and vision sciences, as well as examining functions like movement, metabolism and sight.

They do that in the laboratory and at the bedside, looking at the impact of lifestyle and patient behaviour, as well bioscience and epidemiology, finding the risk factors which can cause disease, and then finding better prevention measures and methods of care.

They research translates into real benefits for people and animals of all ages - from unique approaches to prevent muscle wasting in intensive care patients, a retina scan to detect cerebral malaria in African children, and exercise and nutritional regimes that can prevent obesity and morbidity. They are also making strides in veterinary medicine, and investigating rare diseases like alkaptonuria, which causes severe early onset osteoarthritis.

And they don't work alone. They have newly-created facilities in the University of Liverpool's William Henry Duncan Building, work closely with other exceptional university teams such as the School of Veterinary Science and its Leahurst animal hospital, and their global partners include the Wellcome Trust, UK Research Councils, NIH (USA), Unilever and GSK.

Website:


<https://www.liverpool.ac.uk/ageing-and-chronic-disease/>


Based in:

Liverpool

Mission/Research Topics:

- Musculoskeletal biology
- Eye and vision sciences
- Obesity and endocrinology

Name:	Institute of Healthy Ageing (IHA)	
About:	<p>The Institute of Healthy Ageing is an interdisciplinary centre of excellence for research on the biology of ageing and ageing-related diseases. The biological process of ageing contributes to increased risk of a wide range of diseases, from neurodegenerative diseases (e.g. Alzheimer’s and Parkinson’s disease) and cancer to cardiovascular disease (causing heart attack and stroke) and age-related macular degeneration (causing blindness in the elderly). Their primary purpose is to bring together researchers working on the basic biology of ageing (biogerontology) with those working to understand the causes of ageing-related disease. By merging the two, they aim to develop a new translational biogerontology using the ageing process as a point of intervention to protect against the diseases of old age. Their goal is to improve the health and quality of life for older people.</p> <p>The work of the Institute of Healthy Ageing is pursuing these ends by:</p> <ul style="list-style-type: none"> • Conducting world class research on the biology of ageing and ageing-related disease • Increasing capacity in research on the biology of ageing by training new researchers and nurturing the work of younger principal investigators • Teaching about the biology of ageing at undergraduate and postgraduate levels <p>The problem of ageing is not just an issue of biology, but also of social science, economics and the built environment. A secondary aim of the Institute is to nurture broader collaborations across UCL between researchers working on different aspects of ageing. They aim, through their combined activities, to transform healthcare technology and the social conditions of the elderly to create a future society in which the lives of older people are healthy, meaningful and happy.</p>	
Website:	http://www.ucl.ac.uk/iha/	
Based in:	London	
Mission/Research Topics:	<ul style="list-style-type: none"> • Genes and mechanisms that determine the rate of ageing • Insulin/IGF-like signalling pathway, dietary restriction and resistance to stress • Sex differences in the biology of ageing • Evolutionary conservation of mechanisms of ageing • Bioethical implications of ageing research 	

Name:	<p>Manchester Institute for Collaborative Research on Ageing (MICRA)</p> 
About:	<p>MICRA supports a community of over 100 active academics, bringing together international experts and leading researchers working across the field of ageing. Over 60 research projects and programmes span the Faculties of Humanities; Biology, Medicine and Health; and Science and Engineering. Ageing research is a strategic priority for The University of Manchester, as part of its commitment to social, economic and cultural impact. Founded in 2010, MICRA is recognised as a leading international centre for research on ageing. Its researchers address fundamental research questions about ageing and society through collaborative research, with funders for ageing research including the European Union, UK Research Councils, Government, the Big Lottery, industry, NGOs and the charity sector. Influencing policy, practice and debate. MICRA is situated in the heart of Manchester, the UK's first city to achieve World Health Organization age-friendly status. We engage critically with stakeholders and policy makers at global, national, regional, local and community levels to deliver research with demonstrable policy impact. It aims to embed contributions from older people and stakeholders into all stages of research, ensuring that our work has meaning and direct societal relevance. MICRA is part of the Greater Manchester Ageing Hub, tasked with bringing together plans to support local older people. A range of key policy actors from across Manchester and the UK participate as hub partners.</p>
Website:	<p>http://www.micra.manchester.ac.uk/connect/events/</p>
Based in:	<p>Manchester</p>
Mission/Research Topics:	<ul style="list-style-type: none"> • Biology of ageing and lifespan • Engineering, environment and technology • Frailty, cognition and dementia • Inequalities, health and well-being • Later life work, retirement and pensions • Physical decline and tissue regeneration • Public policy and care provision • Social and cultural change and later life

Name:

Medawar Centre for Healthy Ageing Research

Ensuring Old Age is Enjoyed and Not Endured



About:

The University has a longstanding interest in ageing that began when Peter Medawar was the Mason Professor of Zoology in the late 1940s. Medawar is probably best known for his work on immune tolerance, for which he received a Nobel prize, but he also developed one of the key theories relating to the evolution of ageing - the Mutation Accumulation Theory of Ageing. In the last decade ageing has become a growing research interest at the University. To reflect the importance of ageing research at Birmingham, the University has set up the Centre for Healthy Ageing Research and is making significant new appointments in 2011 at senior level in Stem Cells and Ageing research to support the work of the centre.

We are an ageing population, with current demographic trends indicating that 1 in 5 adults in UK will be aged over 65 by the year 2020.

Whilst this is a cause for celebration, there is also evidence that healthspan (the time spent in good health) is not keeping pace with the increases in average lifespan, with significant consequences for quality of life in old age and for health and social services provision. Thus medical advances have ensured that a greater proportion of the population make it through to the third age of man, but they have made less impact upon the quality of life in old age.

Age is the most important risk factor for many disabling human diseases and on average men will still be unwell for the last 6 years of their lives and women for the last 11 years.

Website:


<https://www.birmingham.ac.uk/research/activity/mds/centres/healthy-ageing/index.aspx>


Based in:


Birmingham


Mission/Research Topics:


- Aging and the cardiovascular system
- Aging and the immune system
- Aging in nematodes
- Ensuring good health in old age
- Aging brain


Name:	Oxford Institute of Population Ageing	
About:	<p>The Oxford Institute of Population Ageing was established in 1998. Based on the US Population Center, it was funded by a grant from the National Institute of Health (National Institute on Aging - NIA) to establish the UK's first population centre on the demography and economics of ageing populations. It achieved Institute status in 2001.</p> <p>Their aim is to undertake research into the implications of population change. They are a multidisciplinary group with demography as our main disciplinary focus, and links into all four University Divisions. Their researchers work in Africa, Latin America, Asia and Europe, and they run the Population Networks AFRAN (Africa) LARNA (Latin America) EAST (Central and Eastern Europe).</p> <p>«Changes in the demographic age structure of populations has become one of the major challenges for the 21st century. Driven predominantly by falling fertility rates across the globe as the Total Fertility Rates of two thirds of the globes countries now reach around or below replacement level, this age compositional shift has huge implications for all aspects of society and economy. Falling mortality rates, especially among the older population has enhanced this age shift, especially in advanced economies. Key questions addressed by the Institute concern the ageing of populations, the potential of the growing labour pool in Emerging Economies, and the progress of the fertility transition in Least Developed Economies. This demographic change affects all regions of the world, from demographic deficits in Europe, demographic dividends in Asia and youth bulges on the Middle East.» - Professor Sarah Harper, Director, Oxford Institute of Population Ageing</p>	
Website:	http://www.ageing.ox.ac.uk	
Based in:	Oxford	
Mission/Research Topics:	<ul style="list-style-type: none"> • Understanding demographic change • Demography and economy • Demography and society • Bio-Demography and health • Demography, science and innovation • Demography and environment 	


Name:	<h1>Salford Institute for Dementia</h1> 
About:	<p>Their approach is putting the humanity and personhood of the person with dementia at the heart of what they do. The institute is engaged in research, innovation and education in supportive design and care for people living with dementia. The focus of this work is the maintenance of independence and the promotion of integrated support in the communities where people live. At the University of Salford they have made the decision to utilise our resources to benefit those in our society whose lives have been changed by dementia today. In November 2013, they established the Salford Institute for Dementia, building on over three years of successful collaboration across a unique network of academics at the University. The Institute has at its heart a spotlight on the humanity and personhood of those living with dementia. Its driving philosophy is to enable people to live positive, fulfilled lives and instil in everyone a confidence that they can make a difference to an individual's experience of dementia. At Salford they are offering a multi-disciplinary lens on this urgent global challenge. As part of their work to become a "dementia friendly" university, over 50 colleagues from across the institution including the School of the Built Environment, the College of Health and Social Sciences and the School of Arts and Media, have created new collaborations to focus our work in this area. This has been supported by their key partners at a local, national and international level, including Alzheimer's UK, Four Seasons Healthcare and the Dementia Action Alliance through the establishment of their own local organisation, the Salford Dementia Action Alliance. Through these relationships and our wider discussions they have discovered that demand for knowledge, networks, expertise and investment in this area is urgently needed and significant.</p>
Website:	http://www.salford.ac.uk/salford-institute-for-dementia
Based in:	Salford
Mission/Research Topics:	<ul style="list-style-type: none"> • Personhood and humanity • Purposeful activity for people with dementia • Design of private and public spaces • Experience of black and ethnic minorities • Experience of people living with dementia in hard to reach communities and individuals

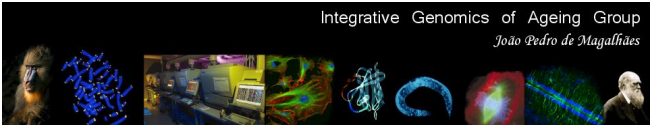
Name:	<p>UK Longevity Explorer (UbbLE)</p> 
About:	<p>UbbLE has been developed as a resource for individuals, researchers, doctors and anyone working in public health and policy, and aims to improve understanding of factors that might increase or reduce life expectancy in UK. UbbLE can be used by:</p> <ol style="list-style-type: none"> 1. Individuals to increase awareness of their health and to provide incentives for lifestyle changes. 2. Researchers as a starting point for future research. 3. Governmental and health organisations to inform public health advice and social policy. <p>This research project used data from the UK Biobank: a large-scale national health resource which aims to improve the prevention, diagnosis and treatment of many serious diseases. Between 2006 and 2010, the UK Biobank team collected a large number of measurements (variables) from over half a million UK volunteers aged 40-70. These measurements included taking blood samples, physical and biological measurements from volunteers as well as carrying out detailed questionnaires. We used some of this information to investigate how closely 655 variables taken from the UK Biobank participants were associated with death within five years. This association shows how accurately a variable can predict death within five years. Although this project was based on UK Biobank data, this research was carried out independently.</p>
Website:	<p>http://www.ubble.co.uk/</p>
Based in:	<p>Sweden</p>
Mission/Research Topics:	<p>Prediction of death, basing on different measurements, like blood samples, physical and biological measurements</p>


Name:	International Longevity Centre - UK (ILC - UK) 
About:	<p>The International Longevity Centre – UK (ILC-UK) is a futures organisation focussed on some of the biggest challenges facing Government and society in the context of demographic change.</p> <p>We ask difficult questions and present new solutions to the challenges and opportunities of ageing. We undertake research and policy analysis and create a forum for debate and action.</p> <p>Our policy remit is broad, and covers everything from pensions and financial planning, to health and social care, housing design, and age discrimination. We work primarily with central government, but also actively build relationships with local government, the private sector and relevant professional and academic associations.</p> <p>We have strong convening power, having over the past year, organised 30 “sold out” events attracting between 30 and 300 people from Government, industry and public policy. ILC-UK is politically independent and frequently attracts speakers including Ministers and opposition spokespeople to our events.</p>
Website:	http://www.ilcuk.org.uk/
Based in:	London
Mission/Research Topics:	The mission is to help societies to address longevity and population ageing in positive and productive ways, typically using a life course approach, highlighting older people's productivity and contributions to family and society as a whole.

Name:	<p>NDORMS (Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences)</p> 
About:	<p>We discover the causes of musculoskeletal and inflammatory conditions to deliver excellent and innovative care that improves people's quality of life.</p> <p>Our multi-disciplinary research is world-renowned and we contributed significantly to Oxford's top rank in Clinical Medicine in the 2014 Research Excellence Framework results, the official UK-wide assessment of all university research.</p> <p>The REF welcomed the strong return in orthopaedic sciences, as well as the outstanding reach and significance of the impacts from our research in musculoskeletal and ageing.</p> <p>We are the largest European academic department in our field and run a globally competitive programme of research and teaching.</p> <p>Our co-location with NHS services at Oxford's Nuffield Orthopaedic Centre puts the department in an excellent and rare position, where researchers work alongside clinicians. This substantially improves research capability, improving access for researchers to patients, and facilitates the interaction between clinicians and scientists, which is essential for successful translational research.</p> <p>We have world-class facilities, with purpose-built laboratories and state-of-the-art equipment. Our multidisciplinary research is thriving, supported by large infrastructure grants from the National Institute for Health Research and the Kennedy Trust for Rheumatology Research. In addition, a number of charities make significant contributions, most notably Arthritis Research UK and the Wellcome Trust, as well as collaborations with Industry.</p>
Website:	<p>https://www.ndorms.ox.ac.uk/</p>
Based in:	<p>Oxford</p>
Mission/Research Topics:	<p>Our mission is to undertake the highest quality research in musculoskeletal and inflammatory conditions to deliver new treatments, which improve people's lives.</p>

Name:	<p>The Alan Turing Institute</p> 
About:	<p>The Alan Turing Institute is the UK's national institute for data science.</p> <p>The Institute is headquartered at The British Library, at the heart of London's knowledge quarter, and will bring together leaders in advanced mathematics and computing science from the five founding universities and other partners. Its work is expected to encompass a wide range of scientific disciplines and be relevant to a large number of business sectors.</p> <p>Five founding universities – Cambridge, Edinburgh, Oxford, UCL and Warwick – and the UK Engineering and Physical Sciences Research Council created The Alan Turing Institute in 2015. Six new universities – Leeds, Manchester, Newcastle, Queen Mary University of London, Birmingham and Exeter – are set to join the Institute in 2018.</p> <p>Our mission is to make great leaps in data science research in order to change the world for the better.</p>
Website:	<p>https://www.turing.ac.uk/</p>
Based in:	<p>London</p>
Mission/Research Topics:	<p>The Institute's mission is to:</p> <ul style="list-style-type: none"> ● undertake data science research at the intersection of computer science, mathematics, statistics and systems engineering; ● provide technically informed advice to policy makers on the wider implications of algorithms; ● enable researchers from industry and academia to work together to undertake research with practical applications; ● and act as a magnet for leaders in academia and industry from around the world to engage with the UK in data science and its applications.

Name:	Francis Crick Institute 
About:	<p>The Francis Crick Institute will be a world-leading centre of biomedical research and innovation in London. It will promote connections between researchers, between disciplines, and between academic institutions, healthcare organisations and businesses.</p> <p>The Crick's mission is to understand the basic biology underlying human health, driving forward better treatment and prevention of the most significant diseases affecting people today.</p> <p>Dedicated to research excellence, the institute will have the scale, vision and expertise to tackle the most challenging scientific questions underpinning health and disease.</p> <p>The Francis Crick Institute is a charity supported by Cancer Research UK, the Medical Research Council, the Wellcome Trust, UCL (University College London), Imperial College London and King's College London. It will be world-class with a strong national role – training scientists and developing ideas for public good.</p>
Website:	https://www.crick.ac.uk/
Based in:	London
Mission/Research Topics:	<p>Our work will help to understand why disease develops and to find new ways to diagnose, prevent and treat a range of illnesses – such as:</p> <ul style="list-style-type: none"> ● cancer; ● heart disease; ● stroke; ● infections; ● neurodegenerative diseases.

Name:	<h2>Integrative Genomics of Ageing Group</h2>	 <p>Integrative Genomics of Ageing Group João Pedro de Magalhães</p>
About:	<p>Integrative Genomics of Ageing Group aims to help understand the genetic, cellular, and molecular mechanisms of ageing. Although the research integrates different strategies, its focal point is developing and applying experimental and computational methods that help bridge the gap between genotype and phenotype, a major challenge of the post-genome era, and help decipher the human genome and how it regulates ageing and longevity.</p> <p>In the long term, the group would like their work to contribute to the development of interventions that preserve health and combat disease by manipulating the ageing process. By studying the mechanisms of ageing their work could also have an impact on diseases, like cancer and neurodegenerative diseases, for which age is a major risk factor. No other biomedical field has so much potential to improve human health as research on the basic mechanisms of ageing.</p>	
Website:	<p>http://pcwww.liv.ac.uk/~aging/</p>	
Based in:	<p>Liverpool</p>	
Mission/Research Topics:	<p>In addition to conducting innovative research, the group aims to train and inspire students to study the biology of ageing. Therefore, in parallel to HAGR, they maintain the senescence.info website, which is an educational resource on the science of ageing. It includes numerous tutorials, essays on the biology of ageing, a list of companies and researchers working on ageing, and other resources related to the study of ageing. In the long term, the group aims to contribute to the development of interventions that preserve health and combat disease by manipulating the ageing process.</p>	

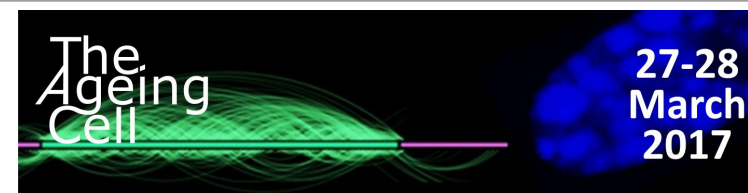
Name:	<p>Centre for Social Gerontology - Keele University</p> 
About:	<p>Established in 1987, the Centre for Social Gerontology at Keele University has an international reputation for excellence in research and teaching focussing on social – and critical – analyses of ageing and later life.</p> <p>Drawing on a variety of disciplinary and multi-disciplinary perspectives, our research addresses such themes as:</p> <ul style="list-style-type: none"> ● Self and identity in old age ● Family practices in later life ● Intergenerational relationships ● Ageing in different environments ● Social exclusion and inclusion ● Late life creativity ● Health and well-being ● The social policy of later life <p>The Centre specialises in conducting research that is relevant to public policy concerns. In recent years, substantive projects have explored new housing and care options for older people; the situations of older people living in disadvantaged urban and rural communities; ageing with HIV and other chronic conditions; health promotion initiatives in later life; ageing without children; and older people’s participation in creative and cultural activities.</p>
Website:	<p>https://www.keele.ac.uk/csg/</p>
Based in:	<p>Staffordshire</p>
Mission/Research Topics:	<p>Our mission is to conduct research that is at the forefront of ageing studies, and to translate our findings into policies and practices that improve the lives of older people. In doing so, we seek to challenge traditional notions of ageing as problematic and burdensome, and to further understanding of the psycho-social and cultural dimensions of ageing.</p>

UK Longevity Conferences

20 UK Longevity Conferences

1. The Future of Ageing Conference 2017: Transforming Tomorrow Today
2. BULK ANNUITIES Pension Buy-ins and Buyouts Longevity Insurance and Reinsurance
3. The Ageing in Common: an international perspective incorporating the inaugural Commonwealth Elders' Forum and the NFC UK Conference
4. 2nd Annual Advances in Immuno-Oncology Congress
5. Alzheimer's Association International Conference
6. Big Data in Biology and Health
7. British Geriatrics Society Autumn Meeting 2017
8. British Geriatrics Society Spring Meeting 2017
9. British Society for Research on Aging 67th Annual Scientific Meeting
10. Next Gen Immuno-Oncology Congress
11. Oxford Global 3rd Annual Cell/ Gene Therapy Congress
12. Stem Cells in Drug Discovery
13. The Ageing Cell
14. Aging 2.0 OPTIMIZE
15. Financial Times Global Pharmaceutical And Biotechnology Conference
16. World Agetech and Longevity Congress 2019
17. Longevity Leaders Summit Series 2018 / 2019
18. The Economist's Ageing Societies 2016
19. The Economist's Business of Longevity: Innovation for an ageing world
20. Ageing Research and Geriatric Medicine

Name: The Ageing Cell



Date: March 27-28. 2017

Website: <https://www.babraham.ac.uk/the-ageing-cell>

Location: Cambridge, UK


Description:

One of the major achievements of the modern era is the extension of the human lifespan through improvements in medical care, nutrition, sanitation and access to clean water. Over the last century, life expectancy at birth in the UK has risen by almost 30 yrs so that both men and women can now expect to live well into their 80s. This is shifting population demographics; almost 1 in 5 of the UK's total population is aged 65 or over and this is expected to rise to 1 in 4 by 2050.

The Ageing Cell conference will bring together an international community of researchers from academia, industry and the clinic in the fields of immunology, genetics, epigenetics and signalling to discuss ageing at the cellular level.

The conference sessions will include:

- The ageing stem cell – how stem cell development, proliferation and function changes with age;
- The ageing immune system – how composition and function change with age;
- Signalling and the ageing cell – signalling pathways that control metabolism and cellular fitness;
- Epigenetics of the ageing cell – exploring changes to the epigenome during ageing.

Name:	Stem Cells in Drug Discovery 
Date:	March 6-7. 2017
Website:	http://selectbiosciences.com/conferences/index.aspx?conf=SCDD2017
Location:	Cambridge, UK
Description:	<p>This meeting was at the Wellcome Genome Campus Conference Centre in Cambridge, UK on 6 - 7 March 2017, attendees will benefit from unrestricted access to all four tracks.</p> <p>Progress in developmental and stem cell biology is revolutionising drug discovery research; the ability to grow and differentiate stem cell lines is providing a far more relevant model for pre-clinical testing. So much so that the FDA is looking into replacing previous models as a matter of urgency. However, challenges in assay development, scale up and quality control still persist and need to be addressed in order for success in this field to continue.</p> <p>Stem Cells in Drug Discovery 2017 will see an even larger event with more talks, attendees and discussions than ever before. Hear from and network with researchers who are currently screening for efficacy and toxicity using iPS cell lines, and those responsible for developing the techniques and technologies enabling them to do so. There will also be discussions on industry and regulatory developments that are shaping the future of drug discovery.</p>





Name:	Next Gen Immuno-Oncology Congress	 <p><i>Next Gen</i> Immuno-Oncology Congress <i>The next step towards changing treatment paradigms in immuno-oncology</i> 13th - 14th March 2017, London - UK</p>
Date:	March 14-15. 2017	
Website:	http://www.mnmconferences.com/Next-Gen-Immuno-Oncology-Congress#MediaPartners	
Location:	London, UK	
Description:	<p>In recent years, the field of immuno-oncology has become one of the most promising and fastest growing areas of cancer research with many drugs introduced in the market and many more in the pipeline of different pharmaceutical companies. Immuno-oncology has become a sub-specialty within oncology owing to its unique science and its potential for substantial and long-term clinical benefit. This success is based on progress in both preclinical and clinical development of first and second generation of therapeutics using different molecules and immune system that include Antibody drug conjugates, bispecific antibodies, immune checkpoint blockades, adoptive cellular therapy.</p> <p>Despite the growth much more research is needed to understand the breadth of opportunities these new generations of immunotherapies represent.</p> <p>Next Gen Immuno-Oncology Congress to be held on 13th and 14th March 2017 in London, UK aims to bring academicians, researchers and scientists from research institutes pharmaceutical, bio-pharmaceutical and biotechnology companies to discuss the growth of existing therapeutics and pave way for emerging next generation therapeutics. Keynote presentations, Brainstorming Panel Discussions and Case studies will give the stakeholders an opportunity to discuss and understand the issues faced.</p>	

Name:	<p>British Society for Research on Aging 67th Annual Scientific Meeting</p> 
Date:	<p>July 10-12. 2017</p>
Website:	<p>http://bsra.org.uk/bsra-2017-university-exeter/</p>
Location:	<p>Exeter, UK</p>
Description:	<p>The aim of this meeting is to show how the -omics technologies allow detailed dissection of ageing processes and age-related disease.</p> <p>Topics include:</p> <ul style="list-style-type: none"> ● Epigenetics: Epigenomic trajectories to health and disease, Epigenetic biomarkers of aging and applications, Epigenetic control of gene expression patterns in ageing yeast; ● Transcriptomics: Transcriptomics and ageing: from humans to lab models and back again; ● Proteomics: Understanding age-related changes in redox signalling using proteomics; ● Ageing mechanisms: Building haystacks and finding needles in the genomics of ageing, 'Senescence: from young to old and back again?' ● Immune Ageing: How aging impacts the response to influenza; ● Chromosomes and chromatin: Chromosome behavioural changes in old cells

Name:	British Geriatrics Society Spring Meeting 2017	British Geriatrics Society Improving healthcare for older people
Date:	April 26-28. 2017	
Website:	https://eu.eventscloud.com/ehome/200170575	
Location:	SAGE Gateshead / Newcastle, UK	
Description:	<p>The BGS Spring meeting will cover the latest scientific research and the best clinical practice in care of older people. Our ageing population is stimulating extensive NHS service redesign to deal with the challenge of caring for larger numbers of older people both in and out of hospitals.</p> <p>Full day sessions on:</p> <ul style="list-style-type: none"> ● Ethics and Law; ● Dementia. <p>Sessions on:</p> <ul style="list-style-type: none"> ● Falls and Syncope; ● Embedding CGA in other Specialties; ● Digital Technology and Telehealth for older patients; ● Causes of age-related illness; ● Healthy Life Simulation; ● Oral Hygiene in older people; ● Improving Continence; ● Hematology in the Older Person 	

Name:	British Geriatrics Society Autumn Meeting 2017	 British Geriatrics Society Improving healthcare for older people
Date:	November 22-24. 2017	
Website:	https://eu.eventscloud.com/ehome/200170574	
Location:	London, UK	
Description:	<p>The BGS Autumn meeting will cover the latest scientific research and the best clinical practice in care of older people. Our ageing population is stimulating extensive NHS service redesign to deal with the challenge of caring for larger numbers of older people both in and out of hospitals. This conference will cover core areas of interest to all specialists responsible for the health care of older people in the United Kingdom.</p> <p>Plenary sessions on:</p> <ul style="list-style-type: none"> ● Community geriatrics; ● Commissioning Care Homes services; ● Care Home Research; ● Designing care homes; ● Pain in Older People; ● Movement Disorders - Parkinson's & Non Parkinson's; ● Cardiac Disease & TAVI; ● Research clinic; ● Gastro Intestinal Disorders in Older People; ● Biology of Ageing. 	


Name:	<h1>Big Data in Biology and Health</h1>  <div style="background-color: #e0e0e0; padding: 5px;"> <p>Big Data in Biology and Health 25-27 September 2017 Wellcome Genome Campus, Hinxton, Cambridge, UK</p> </div>
Date:	September 25-27. 2017
Website:	https://coursesandconferences.wellcomegenomecampus.org/events/item.aspx?e=664
Location:	Hinxton, UK
Description:	<p>The second big data in biology and health meeting will explore the opportunities and challenges of big data in biology, health and disease and provide a forum for scientists and clinicians from academia and industry to drive the future development of research in this area.</p> <p>Individualised medicine based on patient genomes will have an enormous impact on healthcare. With breakthroughs in DNA sequencing technology, the number of sequenced genomes could reach >1 million within 5–10 years. The simultaneous generation and integration of this associated molecular and clinical data will provide an unprecedentedly rich set of ‘big data’ for basic research and translation. Integration of these data will provide new research opportunities, for example, through the identification of novel biomarkers or by enabling the identification of causal relationships in molecular biology through analysing complex datasets, but will also come with significant technical and bioethical challenges.</p> <p>This year’s meeting will focus on the theoretical foundations for the use of large datasets in healthcare. It will address the opportunities and challenges of ‘big data’ analytics and data mining, there will be sessions on infrastructure, pipelines and data sharing. We will also explore the applications of big data in basic research and genomics, and the translational opportunities in the clinical setting.</p>


Name:	Alzheimer's Association International Conference 
Date:	July 16-20. 2017
Website:	https://alz.org/aaic/releases_2016/mon_930_ET.asp
Location:	London, UK
Description:	<p>This event showcases like foster an atmosphere to encourage research opportunities of care management for persons engaged with Alzheimer etc. in the Medical & Pharmaceutical industry.</p> <p>For the 2016 year, for example, Canadian researchers presented at AAIC the next observations:</p> <ul style="list-style-type: none"> ● Discoveries identifying biomarkers of memory resilience in people with Alzheimer's disease and preserved motor function in people with Parkinson's disease, which may offer new targets for treatment. ● Creative and evidence-based methods of delivering culturally appropriate dementia care to several First Nation (Indigenous) communities in the province of Ontario. ● An Ontario-based physical and social recreation program provides significant improvements in physical function, activity and agility for people with dementia. <p>Also, according to researchers, the prevalence of Alzheimer's disease and other dementias has increased more than 18 percent in Ontario, Canada, over the past eight years. Although prevalence rates have remained higher among women (97.3 per 1,000 in 2012/13) than men (68.2 per 1,000), the increase over the study period was greater among men.</p>


Name:	<p style="text-align: center;">  OXFORD GLOBAL </p> <p style="text-align: center;"> 2nd Annual Advances in Immuno-Oncology Congress </p>
Date:	<p>May 15-16, 2017</p>
Website:	<p>https://www.immunooncology-congress.com/</p>
Location:	<p>London, UK</p>
Description:	<p>Oxford Global are proud to present the 2nd Annual Advances in Immuno-Oncology Congress, taking place 15-16 May 2017 in London UK. The event features 200 delegates from world renowned academic institutions, hospitals, global pharmaceutical organisations and leading biotechnology companies. 36 presentations and case studies will focus on the key developments in Immuno-Oncology with specific reference to the discovery of therapeutic areas, pre-clinical and clinical studies, screening, assays and modelling.</p> <p>On the congress, there were over 300 delegates from world renowned academic institutions, hospitals, global pharmaceutical organisations and leading biotechnology companies.</p> <p>Over 50 presentations and case studies focusing on the key developments in Immuno-Oncology with specific reference to the discovery of therapeutic areas, pre-clinical and clinical studies was shown.</p>

Name:	The Ageing in Common: an international perspective incorporating the inaugural Commonwealth Elders' Forum and the NFC UK Conference
Date:	16 – 18 April 2018
Website:	http://www.commage.org/2018-inaugural-elders-forum/
Location:	London, UK
Description:	<p>The Ageing in Common: an international perspective incorporating the inaugural Commonwealth Elders' Forum and the NFC UK Conference is being held 16 – 18 April 2018 at at DeVere Wokefield Estate Hotel and Conference Centre, Berkshire, UK.</p> <p>Themes include Human Rights, Women and Dementia, Intergenerational Communities, Leadership, Disruptive Care, the presentation of the first ever Ageing in the Commonwealth research project and much much more. The Elders Forum is linked to the Commonwealth Heads of Government Meeting (CHOGM). At CHOGM leaders from all the Commonwealth member countries will gather in London and Windsor to address the shared global challenges we face and agree how to work to create a better future for all our citizens. The NFC UK Care Conference will look at Human Rights, Nursing, End of Life Care across all UK countries. Hear from CQC and NFC members perspectives as well as diversification and developing Care Models in the UK.</p> <p>All professionals and anyone with an interest in aged care are encouraged to join us at this exciting joint initiative which is a partnership between CommonAge and the National Forum National Care Forum, and working in close collaboration with Care England, Age International and the International Longevity Federation (UK).</p>




Name:	<p>BULK ANNUITIES Pension Buy-ins and Buyouts Longevity Insurance and Reinsurance</p> 
Date:	<p>26th - 27th Apr 2017</p>
Website:	<p>https://www.westminsterandcity.co.uk/conferences/15th-conference-bulk-annuities/</p>
Location:	<p>London, UK</p>
Description:	<p>This conference is the main annual occasion for the leading providers and advisers to come together to exchange views about the latest developments in the bulk annuity and longevity risk transfer market and the factors which will influence its development in the coming year. Although most delegates are from the UK, last year the event also attracted attendees from Canada, USA, Bermuda, Germany, Sweden, Switzerland and Ireland.</p> <p>There is a strong pipeline of business for buy-ins. Pension schemes and solution providers are working well together to produce impressive and affordable outcomes. Longevity risk transfer mechanisms are evolving, notably with increased deal experience in other jurisdictions.</p>

Name:	The Future of Ageing Conference 2017: Transforming Tomorrow Today	
Date:	29 November 2017	
Website:	https://www.eventbrite.co.uk/e/the-future-of-ageing-conference-2017-transforming-tomorrow-today-tickets-33422908820#	
Location:	London, UK	
Description:	<p>Time for Transformation, a new ‘normal’ – where society has aligned and adapted to the fact we are living longer. The world is going through turbulent times. But one thing is certain – it is getting older.</p> <p>ILC-UK has been active for 16 years and have witnessed some significant change over this time. Yet progress has been far too slow and we are still talking about issues which should have been solved 10 years ago.</p> <p>This conference will aim to reinvigorate those of us already convinced of the importance of ageing. But to achieve the transformation we need must reach beyond the usual suspects. We need businesses, entrepreneurs, people managers, and marketing professionals to work with the charity sector and policy makers and politicians to deliver change. And we need to help provide the evidence to make the case for action.</p>	

Name:	<p style="text-align: right;">  AGING^{2.0} OPTIMIZE <small>NOV. 14-15, 2018 HERBST THEATRE SAN FRANCISCO WAR MEMORIAL</small> </p> <p>Aging2.0 OPTIMIZE</p>
Date:	<p>November 14-15, 2018</p>
Website:	<p>https://www.aging2.com/optimize-2018/</p>
Location:	<p>London, UK</p>
Description:	<p>Taking place in the iconic Herbst Theater at the War Memorial Building, OPTIMIZE will feature megatrend keynotes, market insights from the c-suite, pitches from carefully curated startups who are in-market with traction, exclusive networking opportunities and an unmatched showcase of cutting-edge exhibitors from around the world. Join senior care providers, health plans, hospital systems, risk takers, thought leaders, investors and top entrepreneurs to discuss the unprecedented confluence of demographic, technological and policy trends that are creating massive needs and opportunities across the continuum of care for older adults. From megatrend keynotes about machine intelligence and the longevity economy to c-suite panels about the shift to value-based care and the future of senior care, the carefully curated combination of thought-provoking content, high-value networking and best-in-class exhibitors makes OPTIMIZE an action and value-packed event that can't be missed.</p>

Name:	Ageing Research and Geriatric Medicine 
Date:	22nd -23rd April 2019
Website:	https://ageing.euroscicon.com/
Location:	London, UK
Description:	<p>Ageing and Geriatric Medicine conference aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Ageing and Geriatric Medicine. It also provides the premier interdisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of Ageing and Geriatric Medicine.</p>

Name:	World Agetech and Longevity Congress 2019 
Date:	2019 (TBD).
Website:	N/A
Location:	London, UK
Description:	<p>Launching in 2019, the World Agetech and Longevity Congress (WALC) is a unique congress and expo for senior-level decision makers from across the burgeoning ecosystem. The content is truly high level, future focussed and transformational, curated by people with deep domain expertise and extensive networks in the life sciences, pharma, agetech, government and investor communities.</p> <p>The global event will focus on industry advancement, providing a platform for attendees to uncover new approaches, share ideas, develop meaningful relationships and do business. There will be a huge array of familiar formats including keynotes, thematic tracks, showcases and a large expo with on-floor seminars, plus novel forums for interaction including CxOforums, qualified 1-2-1 partnering, a hosted buyer program and peer-group receptions and dinners.</p> <p>Highlights: World leading pioneers in related life sciences, academia, tech and investment communitie. Multiple co-located high level conferences, with over 2500 attendees, large scale exhibition with 100 exhibitors and 250 c-level speakers. Three day conference with 1-2-1 partnering, showcase and investor meetings, VIP & hosted buyer programme, peer group dinners, hackathons, start-up pitch contests.</p>

Name: Longevity Leaders Summit Series
2018 / 2019



Date: November 2018 (London); January 2019 (San Francisco); March 2019 (Boston); May 2019 (Zurich)


Website: <http://longevityleaders.com>

Location: London, UK; San Francisco, USA; Boston, USA; Zurich, Switzerland

Description:

Launching in 2018 across four global cities – London, San Francisco, Boston, Zurich - the Longevity Leaders Summit Series will connect leading global minds in life sciences, academia, tech, policymakers and the investment community to:

- Discuss the future of Longevity and combine the IQ and influence of the region's leading KOLs and stakeholders to build a global roadmap for the industry.
- Discuss developments in key progressive technologies and treatments.
- Discuss how governments and regulators can shape/address macroeconomic implications, ethical concerns and population management dilemmas.
- Frame the structure, theming and focus of a large-scale World Agetech and Longevity Congress

Name:	Financial Times Global Pharmaceutical And Biotechnology Conference	 <p>FT Global Pharmaceutical and Biotechnology Conference 2017 Thriving Amid Uncertainty London 09 - 10 November 2017</p>
Date:	09 - 10 November 2017	
Website:	https://live.ft.com/Events/2017/FT-Global-Pharmaceutical-and-Biotechnology-Conference-2017	
Location:	London, UK;	
Description:	<p>The FT Global Pharmaceutical and Biotechnology Conference, in its 35th successful year brought together life science companies, their health industry counterparts and emerging new industry entrants to review the key challenges facing the industry, and the business models and transformation strategies that will be needed to survive and thrive in the new era of unprecedented disruption and uncertainty.</p>	

Name:	<p><i>The Economist</i> Aging Societies 2016</p> 
Date:	<p>29 - 30 November 2016</p>
Website:	<p>https://events.economist.com/events-conferences/emea/ageing-societies/</p>
Location:	<p>London, UK.</p>
Description:	<p>Key figures across international organisations, politics and finance have called for united efforts from government and business to meet the challenges and opportunities presented by an ageing population.</p> <p>Meeting at The Economist Event's Ageing Societies summit in London on 29th-30th November, key industry and political speakers from organisations including the World Health Organisation, Bupa, OECD, BT, Blackrock, PensionDanmark, HSBC, Danone discussed the impact that the world's ageing populations will have on current and future generations.</p> <p>Speakers included</p> <ul style="list-style-type: none"> ● Dmitry Kaminskiy (Managing Partner, Deep Knowledge Ventures) ● Ros Altmann (Former Minister of State Pensions, House of Lords) ● John Beard (Director, Ageing and Life Souce, WHO) ● Sally Greengross (Member, House of Lords; President & CEO, International Longevity Centre UK) ● Chip Castille (Chief Retirement Strategist, Blackrock) ● Fiona Adshead (Chief Wellbeing Officer, Bupa)

Name:	<p><i>The Economist</i> The Business of Longevity 2016</p> 
Date:	<p>07 December 2016</p>
Website:	<p>https://events.economist.com/events-conferences/americas/longevity/2016</p>
Location:	<p>London, UK.</p>
Description:	<p>This full-day event looked at aging through an economic lens to identify the business opportunities and policy challenges associated with America’s promising, and rapidly growing, aging market. This conference takes the conversation about longevity beyond what is happening now and looks at the future of where this sector will be in 5-10 years. The conference presented the experiences of the entrepreneurs, innovators and investors who are already succeeding commercially in these markets today.</p> <p>Featured topics</p> <ul style="list-style-type: none"> ● The economics of longevity ● Capitalizing on the ‘silver tsunami’ ● Regenerative medicine ● Disruptive technology ● Investing in longevity ● The policy and regulatory landscape ● Aging innovators around the world ● Can we afford to live longer?

UK Longevity Journalists

The Rise of Longevity Media

Within the past 5 years we have witnessed an incredible surge of interest in the topic of Longevity by many well-respected technology and business media brands, including *Bloomberg*, *Financial Times*, *The Economist*, *TIME*, *BBC News*, and many others. This profile chapter is intended to identify some of the most prolific Longevity Journalists and to highlight some of the main topics and trends surrounding the topic of Longevity in UK-based media brands and publications.

In 2013 the topic of extending healthy longevity to the point of increasing the average life expectancy in developed nations to over 100 years, even as a distant future prospect, was considered futuristic and unusual.

Today, such an estimation is routinely seen as normal, and indeed, even perhaps conservative.

Besides an increase in the perceived credibility and feasibility of extending healthy longevity in the eyes of the public, the past 5 years has seen a dramatic rise in the perceived credibility of a legitimate Longevity Industry in the eyes of investors, business analysts, and reputable, conservative business media brands including *The Economist* and *Financial Times* (both of whom have held either conferences or panel discussions on the topic of the Longevity Industry).

What was today seen as fringe science is now recognized and discussed not as an unusual prediction but as a normal state of affairs by financial entities and investment funds.

The past 5 years has also seen an increasingly obvious connection between advanced biomedicine and longevity, with the topic receiving mention to an increasingly prevalent extent in articles about biopharma and advanced biomedicine in general.

5 years ago *TIME* issued a cover asking "Can Google Solve Death?". If any other news outlet put out such a statement it would have been seen as wildly controversial, but because it was *TIME*, and they were talking about Google, it was met without controversy. Today, such magazine covers have become increasingly common.

Relatively few years ago, to state that the life expectancy of developed nations could exceed 100 years was controversial. Today it is regularly perceived as normal. When Dmitry Kaminskiy launched his \$1M prize to the first person to reach their 123rd birthday, it was widely covered by media such as Forbes because it was seen as controversial.

Today, it doesn't sound so very unusual. Based on our analysis of both industry trends, trends within academia and the nonprofit sector, as well as in media trends, we can predict that in 5 years time it will be seen as normal to predict that developed nations life expectancy can exceed 120.

It has also become quite common in the past several years for top business media entities to organize conferences on the subject of Longevity, and for conservative BioPharma conferences to include panels on the topic of Longevity.

This also highlights the fact that Longevity is increasingly finding its way into discussions and frameworks for the general BioPharma industry and advanced biomedicine.

Several years ago the topics were seen as similar and somewhat convergent, but this gap between Longevity therapeutics and advanced biomedicine in general is receding, and we can expect Longevity to take a place in the next few years as a standard and normal element of advanced biomedicine in general, and indeed, perhaps even on the forefront of advanced biomedicine.

So too, have the topic of Longevity garnered increasing support from various government initiatives.

Given the profusion of interest in the topic of Longevity, and its murky past, where the term Anti-Aging was used to sell face creams rather than healthspan-extending therapies based on validated science, we urge journalists to cover the topic in an increasingly due-diligent, informed manner, using tangible metrics; as validated science that is making progress toward the healthcare paradigm shift from treatment to prevention, with the potential to relieve the massive economic burden of demographic aging, and to more effectively treat the chronic ailments afflicting developed nations at their source, rather than articles about magic pills conferring immortality in one fell swoop.



UK Longevity Journalists



The Economist

Natasha Loder



FT FINANCIAL TIMES

Andrew Jack



Bloomberg

James Paton



Bloomberg

Jeremy Kahn



BBC NEWS

Hugh Pym



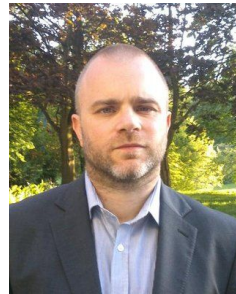
AUTODESK

Justin Lawler



MNT

Maria Cohut



pharmaphorum bringing healthcare together

Richard Staines



MNT

Catharine Paddock



BBC NEWS

Fergus Walsh



BBC NEWS

James Gallagher



digitalhealth news networks intelligence

Hannah Crouch



DIGITAL HEALTH TODAY

Dan Kendall



TECHNOLOGY NETWORKS

Laura Mason



DIGITAL JOURNAL

Tim Sandle



Haggerston Times

Edmund Ingham



EXPRESS

Olivia Lerche



Herald

Peter Swindon



THE CONVERSATION

Thomas Tamblyn



THE CONVERSATION

Dominick Burton

Name

Edmund Ingham

Position and organization

Writer and editor of Haggerston Times

Location

UK

Bio

Edmund Ingham is a writer and editor at Haggerston Times since 2014. Edmund likes to focus on the world's most exciting entrepreneurs and their companies, big or small, global player or humble start-up. He reports on trends and discuss strategies, as well as looking at what makes a truly great entrepreneur.

Articles

1. [Business of Longevity Deep Dive Report Released](#)



Haggerston Times

Name

Olivia Lerche

Position and organization

Health Reporter at Daily Express

Location

UK

Bio

Olivia Lerche is Media Manager at South London and the Maudsley NHS Foundation Trust. As well she is Health reporter at Express Newspapers since April 2016.

Articles

1. [High blood pressure: What is the 'silent killer' condition and how YOU can check it](#)
2. [Parkinson's disease: Symptoms to watch out for of devastating neurodegenerative disorder](#)
3. [The key to healthy ageing revealed: THIS is the secret to being active in old age](#)



DAILY EXPRESS
THE WORLD'S GREATEST NEWSPAPER

Name

Peter Swindon

Position and organization

Journalist-Herald Scotland

Location

UK

Bio

Peter Swindon is a journalist for The Herald Scotland. Previously he wrote articles for: The Times, Ayrshire Post, The Herald (Scotland), The Evening Times, Telegraph and Argus, Asian Image, The Gazette (Johnstone & Renfrewshire), Barrhead News

Articles

1. [New drugs could make astronauts more resistant to cosmic rays that cause cancer during missions to Mars](#)
2. [Amnesty urges Theresa May to change abortion law in Northern Ireland](#)
3. [New drugs strategy will divert drug users away from prosecution](#)



The Herald

Name

Thomas Tamblyn

Position and organization

Technology Editor at The Huffington Post

Location

UK

Bio

Thomas Tamblyn is the Technology Editor at HuffPost UK, based in London. Previously he worked as a writer for consumer technology magazine T3 and has written for various publications including Total Film, The Mirror and Tech. He has a degree in Journalism from the University of Westminster

Articles

1. [A New Type Of Drug Could Prevent The Body From Developing Dementia, Heart Disease And Even Arthritis](#)
2. [Listeria Outbreak: These Are The Symptoms To Watch Out For And Why You Need To Cook Your Frozen Veg](#)
3. [Scientists Find Key Ingredient For Life On Saturn's Moon Enceladus](#)



THE HUFFINGTON POST
TOP NEWS AND OPINION

Name

Dominick Burton

Position and organization

Cell Senescence Researcher, Loughborough University
The Conversation

Location

UK

Bio

Dominick Burton is currently undertaking a research position at the Centre for Biological Engineering at Loughborough University focused on extending the cell culture lifespan of cells required for therapeutic applications. He was awarded his PhD in 2008 from the University of Brighton (UK), conducting research on senescent vascular smooth muscle cells and their relationship to cardiovascular disease. Then, as a postdoctoral associate at the University of Miami (USA), he went on to investigate the role of cell senescence in prostate cancer progression.

Articles

1. [Killing 'zombie' cells to improve health in old age](#)



THE CONVERSATION

Name

Natasha Loder

Position and organization

Healthcare Correspondent for The Economist

Location

UK

Bio

Natasha Loder is The Economist's Healthcare correspondent and based in London. She covers the pharmaceutical industry, medical science and technology. Between 2011 and 2014 she worked as a foreign correspondent in Chicago, covering the Midwest, American education and agriculture.

Articles

1. [Is there a doctor in my pocket?](#)
2. [Rational reproduction: how technology is improving on nature](#)
3. [Breathe easy](#)



The
Economist

Name

Andrew Jack

Position and organization

Global education editor for the Financial Times

Location

UK

Bio

Andrew Jack is global education editor for the Financial Times, writing on educational issues around the world and editorial lead for the free FT schools programme. He was previously deputy editor of the analysis section, pharmaceuticals correspondent, Moscow bureau chief, Paris correspondent, financial correspondent, general reporter and corporate reporter.

Articles

1. [FT Health: The NHS and funding for health](#)
2. [Drug costs prompt fears of 'financial toxicity' in cancer care](#)
3. [FT Health: Transfat ban could save 500,000 lives a year](#)
4. [FT Health: Pneumonia - the biggest killer of children](#)



Name

James Paton

Position and organization

Europe health reporter at Bloomberg News

Location

UK

Bio

James Paton is an Europe health reporter at Bloomberg News in London. Before he wrote for Chicago Tribune, The Boston Globe, St. Louis Post-Dispatch, Toronto Star, Seattle Times, Star Tribune, Salt Lake Tribune, Fort Worth Star-Telegram, The Globe and Mail.

Articles

1. [British Doctors Lack Transparency Where Big Pharma Pays](#)
2. [Novartis to Spin Off Alcon as CEO Focuses on Finding Drugs](#)
3. [Tiny U.K. Biotech Takes On Glaxo's \\$730,000 Gene Therapy](#)



Bloomberg

Name

Jeremy Kahn

Position and organization

Technology writer for Bloomberg

Location

UK

Bio

Jeremy Kahn reports and writes about technology and tech companies in Europe. Before he wrote stories on a range of topics involving India and South Asia for publications that included The New York Times, The International Herald Tribune, Newsweek, The Atlantic, Smithsonian magazine, The Boston Globe, Fortune, Portfolio magazine, and others.

Articles

1. [What's up doc? This AI might know better than your physician](#)
2. [Emergency number AI can save lives by spotting heart attacks more quickly](#)
3. [AI-Powered Drug Developer Hits \\$2 Billion Valuation, Plans Hires](#)



Bloomberg

Name

Hugh Pym

Position and organization

Health Editor for BBC News

Location

UK

Bio

Pym has published four books: “What Happened? And Other Questions About the Credit Crunch” (co-author with Nick Kochan), “A Study Of Gordon Brown's First Year in Office as Chancellor of the Exchequer” (also co-written with Nick Kochan).

Articles

1. [NHS reform: How many patients will benefit?](#)
2. [Sugar tax: There's more to come in the war on obesity](#)
3. [How accurate is hospital A&E data?](#)



BBC NEWS

Name

Justin Lawler

Position and organization

Senior Software Developer at Autodesk

Location

Ireland

Bio

Justin is a developer, team lead, blogger, outsourcing expert, and organizer of the Dublin branch of Quantified Self.

Articles

1. [High-frequency blood testing. What? Why? How?](#)
2. [The future of Healthcare is in the Home - Startup Grind talks to Johnny Walker](#)
3. [Patient as Entrepreneur - Interview with Patient Advocate and CEO of HealthTech Company 11 Health](#)



Name

Maria Cohut

Position and organization

News Writer for Medical News Today

Location

UK

Bio

With an academic background in English and Creative Writing, Maria is endlessly curious about mental health, bioethics, and genetics. She is passionate about research and delivering high-quality, reliable content to readers. Before joining the team at MNT, Maria worked as a literature and communication skills teacher, postgraduate ambassador, and freelanced as a writer and copy editor.

Articles

1. [How daytime sleepiness may raise Alzheimer's risk](#)
2. [Alzheimer's: Brain implant could improve cognitive function](#)
3. [Head injuries may lead to early Alzheimer's](#)



Name

Richard Staines

Position and organization

Senior Reporter for Pharmaphorum

Location

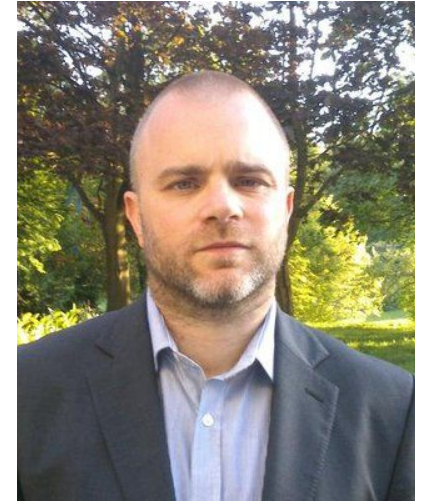
UK

Bio

Richard Staines has been a journalist since the late 90s and has written for websites, newspapers and magazines. He has always had an interest in health, and has been writing about the pharma industry since 2010. His coverage has included stories about market access, the impact of the Greek financial crisis on the healthcare system and pharma pricing in the UK.

Articles

1. [US health firms to launch blockchain pilot](#)
2. [Digital health round-up: Blockchain, digital disruption and more](#)
3. [Digital health round-up: CVS starts to deliver prescriptions, pre-empting Amazon move](#)



Name

Catharine Paddock

Position and organization

Writer for Medical News Today

Location

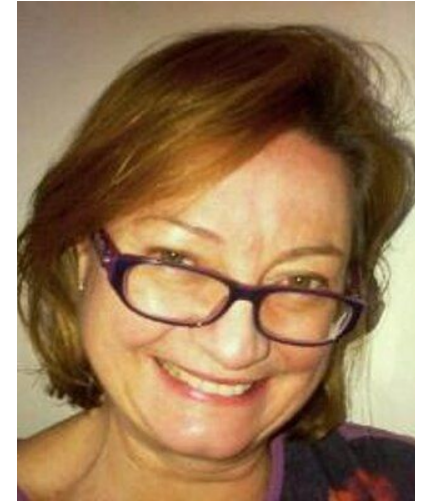
UK

Bio

Catharine has been a news and web content writer for 10 years. In 2008, she was awarded a Ph.D. from Manchester Business School in the United Kingdom after completing her own research culminating in a thesis on psychosocial factors in small and medium enterprises (SMEs). Before taking up news writing, Catharine's career spanned technical writing, training, human resource management, psychotherapy, stress counselling, and small business mentoring.

Articles

1. [Alzheimer's: Scientists find the cause of evening agitation](#)
2. [Alzheimer's: Protecting 'powerhouse' of cells may fuel new treatment](#)
3. [Could an existing oxygen therapy treat Alzheimer's?](#)



Name

Fergus Walsh

Position and organization

Medical Correspondent for the BBC

Location

UK

Bio

Fergus Walsh has been the BBC's medical correspondent since 2006. He has won several awards for medical journalism, and has been commended for his work in making important health topics more understandable to the public.

Articles

1. [DNA 'barcode' delivering personalised breast cancer care](#)
2. [First UK womb transplant 'by end of 2018'](#)
3. ['Wake-up call' over liver disease risks due to weight](#)
4. [Stem cell transplant 'game changer' for MS patients](#)



BBC
NEWS

Name

James Gallagher

Position and organization

Health and Science Reporter for the BBC

Location

UK

Bio

James Gallagher is the health editor for the BBC News website. He has received awards for his journalism from the Radio Academy, the Medical Journalists Association, the Association of British Science Writers and the Endocrine Society.

Articles

1. [Gene Therapy Reverses Rat's Paralysis](#)
2. ['Remarkable' therapy beats terminal breast cancer](#)
3. [Body clock linked to mood disorders](#)
4. [Missing microbes 'cause' childhood cancer](#)



BBC
NEWS

Name

Hannah Crouch

Position and organization

Senior Journalist at Digital Health Intelligence Ltd

Location

UK

Bio

Hannah Crouch is a Senior Journalist at Digital Health Intelligence Ltd. Before she was a news reporter for the Slough Express and responsible for sourcing stories as well as writing content for the website and paper.

Articles

1. [Microsoft and GOSH partner for artificial intelligence in healthcare](#)
2. [Babylon partners up with Bupa for 'one of a kind' health service](#)
3. [Babylon expands its AI technology to mainland China](#)



digitalhealth
news • networks • intelligence

Name

Dan Kendall

Position and organization

Managing Editor and Host for the Digital Health Today

Location

UK

Bio

Dan Kendall is the managing editor and host of Digital Health Today, an integrated media platform that inspires, connects and accelerates innovators across healthcare and around the world.

Articles

1. [Medable Launches the First Cloud Solution for Real Time Health Management on iOS](#)
2. [Virtual Reality in Health: Applications in Surgery and Therapy](#)



Name

Laura Mason

Position and organization

Science Writer at Technology Networks

Location

UK

Bio

Laura Mason is a Science Writer at Technology Networks covering: Biopharma, Cancer Research, Drug Discovery.

Articles

1. [Therapeutic Approaches to Combat Age-Related Diseases](#)
2. [The Role of Wnt Signaling in Cancer](#)
3. [Cisplatin Efficacy: The Importance of Measuring Uptake in Cancer Cells](#)



TECHNOLOGY
NETWORKS

Name

Tim Sandle

Position and organization

Pharmaceutical Microbiologist and Editor-at-Large at Digital Journal

Location

UK

Bio

Dr. Tim Sandle is a chartered biologist and holds a first class honours degree in Applied Biology; a Masters degree in education; and has a doctorate from Keele University. He is a journalist, technical writer, author, and practicing scientist.

Articles

1. [Blockchain technology to equip scientists and drug developers](#)
2. [Blockchain technologies could return control of data to patients](#)
3. [Essential Science: Sodium intake and the link with mortality](#)



**DIGITAL
JOURNAL**

Examples of Articles



FEATURES CULTURE DESIGN STYLE TECHNOLOGY FOOD + DRINK TRAVEL DISPATCHES

SEARCH



FERTILITY

RATIONAL REPRODUCTION

Rational reproduction: how technology is improving on nature

NATASHA LODER | APRIL/MAY 2016



FEATURES CULTURE DESIGN STYLE TECHNOLOGY FOOD + DRINK TRAVEL DISPATCHES

SEARCH

HEALTH

IS THERE A DOCTOR IN MY POCKET?

Advances in medical technology can be painfully slow. But, Natasha Loder argues, we are on the verge of a transformation in health care that will render visiting the doctor a thing of the past



NATASHA LODER | OCTOBER/NOVEMBER 2017



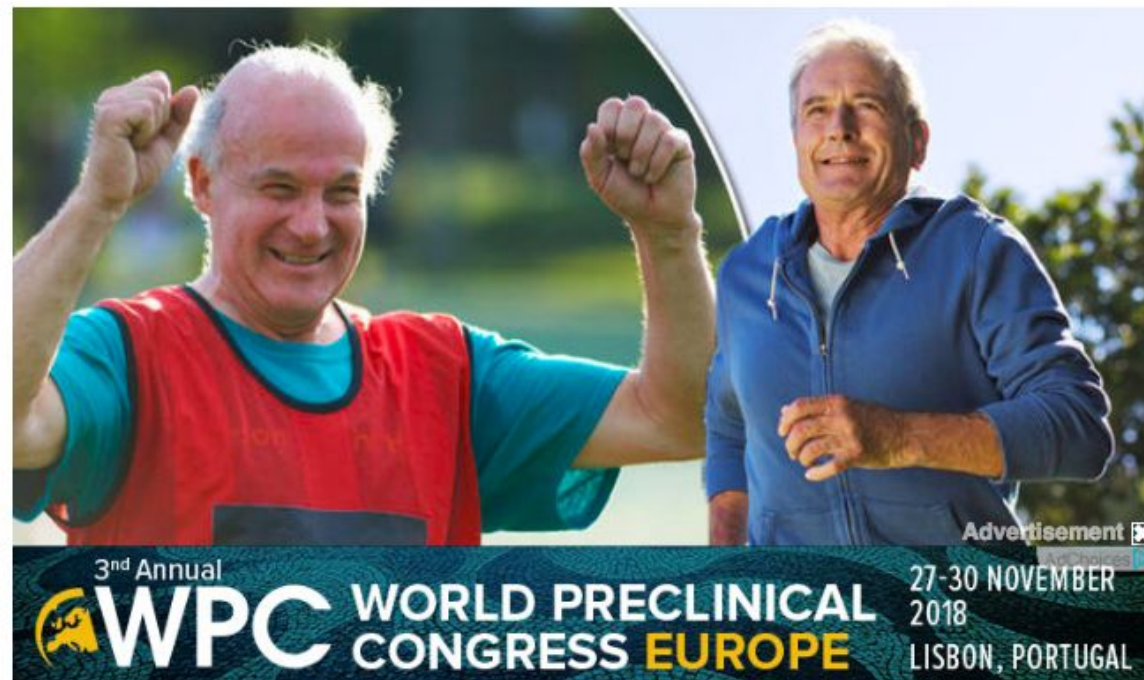
Examples of Articles

The key to healthy ageing revealed: THIS is the secret to being active in old age

THE key to ageing healthily has been revealed by experts - and it could be as simple as being active in mid life.

By **OLIVIA LERCHE**

PUBLISHED: 10:07, Thu, Sep 21, 2017 | UPDATED: 10:19, Thu, Sep 21, 2017



Exercise: Being physically active in midlife will help people as they get older

Examples of Articles

FINANCIAL TIMES

HOME WORLD US COMPANIES MARKETS OPINION WORK & CAREERS LIFE & ARTS

Latest on National Health Service

 Raising fuel duty 'absolute madness', says Tory MP

 NHS launches its biggest recruitment drive

 NHS develops contingency plans for no-deal Brexit

National Health Service [+ Add to myFT](#)

FT Health: The NHS and funding for health

Helen Clark, child mortality, smartphone addiction





© FT montage

Andrew Jack and **Darren Dodd** JANUARY 12, 2018 1

Examples of Articles

Life expectancy to break 90 barrier by 2030

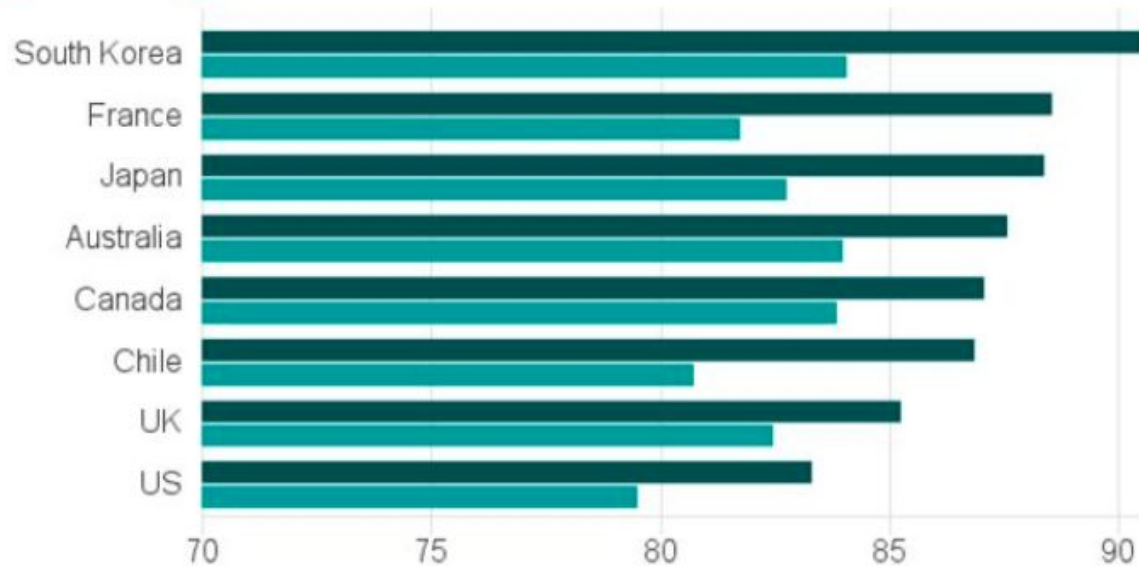
By James Gallagher
Health and science reporter, BBC News website

22 February 2017

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Average life expectancy at birth by 2030 (in years)

■ Women ■ Men



Source: Imperial College London / World Health Organization



South Korean women will be the first in the world to have an average life expectancy above 90, a study suggests.

Examples of Articles

☰ 🔍 FINANCIAL TIMES

HOME WORLD US COMPANIES MARKETS OPINION WORK & CAREERS LIFE & ARTS

FT Health: Combating Cancer

Health [+ Add to myFT](#)

Drug costs prompt fears of ‘financial toxicity’ in cancer care

High prices subject some patients to long-term collateral damage to incomes and health

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Policymakers, as well as physicians and patients, are increasingly concerned about the affordability of cancer drugs © Getty

Andrew Jack MAY 31, 2018 [1](#) [Print](#)

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Health

NHS reform: How many patients will benefit?

 **Hugh Pym**
Health editor
@BBCHughPym

18 April 2018

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NEWS

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Health

How accurate is hospital A&E data?

 **Hugh Pym**
Health editor
@BBCHughPym

28 January 2018

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It's an important and high profile benchmark for NHS performance - the number of patients having to wait more than four hours in A&E to be treated, assessed or for a decision to be admitted to a hospital.

Examples of Articles

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Sign in Menu

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DNA 'barcode' delivering personalised breast cancer care

 **Fergus Walsh**
Medical correspondent
@BBCFergusWalsh

27 June 2018

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Imagine Dragons
Concord Pavilion
July 24
[Buy Tickets](#)

First UK womb transplant 'by end of 2018'

 **Fergus Walsh**
Medical correspondent
@BBCFergusWalsh

5 June 2018

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The surgeon planning to do the first womb transplant in the UK says he hopes to carry out the first operations "before the end of 2018".

Examples of Articles

How long could we live?

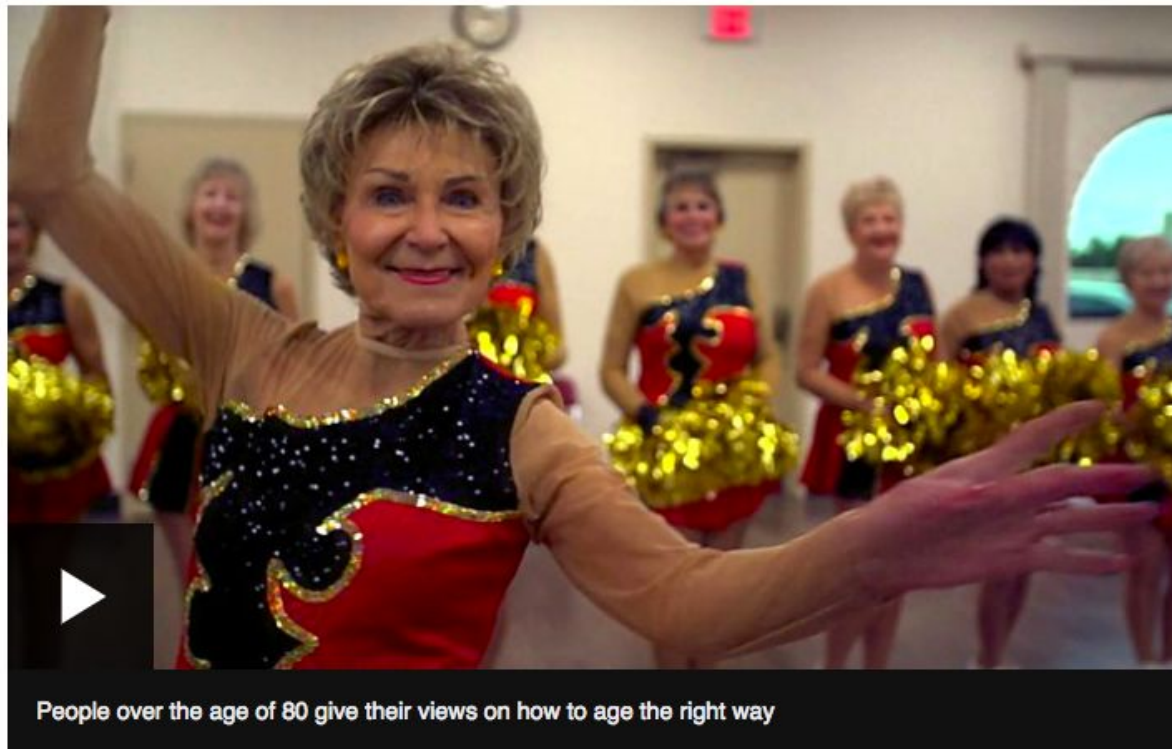


Fergus Walsh
Medical correspondent
@BBCFergusWalsh

🕒 20 December 2017



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How long do you want to live - to 85, 90, 100 or beyond? More important than how long we live is the state of our health in old age.

Examples of Articles

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Health

Body clock linked to mood disorders

By James Gallagher
Health and science correspondent, BBC News

16 May 2018

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Disruption to the body's internal clock may put people at increased risk of mood disorders, scientists say.

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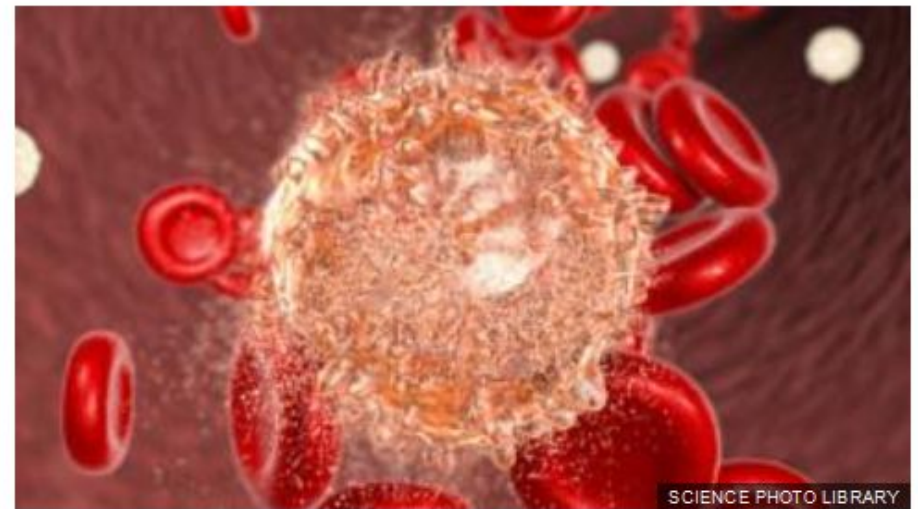
Health

Missing microbes 'cause' childhood cancer

By James Gallagher
Health and science correspondent, BBC News

21 May 2018

f Share



Our modern germ-free life is the cause of the most common type of cancer in children, according to one of Britain's most eminent scientists.

Venture Capitalist Promises \$1M To First Person To Reach 123rd Birthday



Sarah Hedgecock, FORBES STAFF ✓

Apr 21, 2015 12:40 PM

8,556 👁

Venture capitalist Dmitry Kaminskiy thinks he has what it takes to lengthen people's life spans: a million-dollar prize, which he will award to the first person to beat the current longevity record and reach his or her 123rd birthday.



Jean Clement on her 122nd birthday. Jean died at the age of 122.5 years in 1997, and holds the record for the longest lived human in history.

ADVERTISEMENT

EXCLUSIVE: Moldovan oligarch pledges \$1 million prize to the first person that can live to be 123

- The large prize is being offered by businessman, Dmitry Kaminskiy
- He hopes money will help create a new group of 'supercentenarians'
- Jeanne Calment holds the record of oldest person, dying aged 122.5
- He has made a \$1m bet with Dr Alex Zhavoronkov on who will die first

By ZOLTAN ISTVAN FOR DAILYMAIL.COM

PUBLISHED: 18:02 EDT, 10 April 2015 | **UPDATED:** 20:32 EDT, 12 April 2015

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Anti-Aging Experts Made a Million-Dollar Bet on Who Dies Last



Zoltan Istvan

2/23/15 1:00pm • Filed to: LIFE EXTENSION

23.0K

5



© Charlie Groome

At January's JPMorgan Health Care Conference in San Francisco, Dmitry Kaminskiy (right) made a bet with Dr Alex Zhavoronkov (left), PhD, CEO of anti-aging company Insilico Medicine Inc. for a million dollars in stock who would live beyond 100 years of age

Even 10 years ago, the idea of reversing aging and conquering human mortality was still fringe science, seen as snake-oil research by most scientists, large pharmaceutical companies, and the public. What a difference a decade makes. Anti-aging science is poised to become a major industry in the biotech world.

To prove its promise, the first million-dollar bet on who can live the longest (for company stock—a signed deal likely made public later this week) was recently struck. It was made last month by two leading longevity advocates at the [biggest](#) annual healthcare investing event of the year, the JPMorgan Health Care Conference.

Dmitry Kaminskiy, senior partner of Hong Kong-based technology venture fund, [Deep Knowledge Ventures](#), and [Dr. Alex Zhavoronkov](#), PhD, CEO of bioinformatics company [Insilico Medicine Inc.](#) which specializes in

MAR 31, 2017 @ 09:30 AM 4,066

Brit Billionaire Jim Mellon Says Biotech Is The Best Investment Now



Patrick Cox, CONTRIBUTOR

FULL BIO

Opinions expressed by Forbes Contributors are their own.



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We are in the midst of an unprecedented change. Life spans have nearly doubled since the beginning of the 20th century. In addition, recent advances in computer technology have had a huge impact on biological sciences, which means this trend will accelerate.

Still, most people think that the process of aging will go on pretty much as it is now. They're wrong.

Discoveries have been made that will yield radical increases in healthy life expectancies. These

biotechnologies will change everything— the way we live... and the way we invest.

Longer, Healthier Life Spans Require Dramatic Change

MARKETS OPINION WORK & CAREERS LIFE & ARTS

Juvenescence aims to tap longevity 'money fountain'

UK start-up raises \$50m to finance development of anti-ageing therapies



Clive Cookson, Science Editor JUNE 11, 2018

5

JUN 29, 2018 @ 11:29 AM 2,516

Are There No Limits To Human Lifespan? Here Is What This Study Said



Bruce Y. Lee, CONTRIBUTOR
FULL BIO ▾

Opinions expressed by Forbes Contributors are their own.





Biogerontology Research Foundation

Prevent. Restore. Preserve.

Website: <http://bg-rf.org.uk>

Contact: info@bg-rf.org.uk

The **Biogerontology Research Foundation (BGRF)** is the UK's oldest longevity non-profit organization founded by leading geroscientists. The **BGRF** funds and conducts research which aims to develop biotechnological interventions to remediate the molecular and cellular deficits which accumulate with age and which underlie the ill-health of old age. The **BGRF's** Board of Trustees include British billionaire Jim Mellon, prominent longevity investors Dmitry Kaminskiy and Jim Mellon, renowned geroscientists Dr. Alex Zhavoronkov, João Pedro De Magalhães and Dr. Richard Faragher, as well as Jim Plante.



Website:
<http://deepknowledge.life>

Contact:
info@deepknowledge.life

Deep Knowledge Life Sciences is a London based investment fund focused on ground-breaking research in life sciences and aging. **DKLS** strategically invests in mission-driven companies and supports founders who will bridge the gap between basic biological research and real-world healthcare products that extend healthy lifespan. **Insilico Medicine**, a company applying the latest advances in deep learning to biomarker development, drug discovery and aging research, is the **DKLS flagship investment**.



LONGEVITY.INTERNATIONAL

Website: <http://longevity.international>

Contact: info@longevity.international

Longevity International is an online interactive database of longevity scientists, companies, and investors. This platform allows different stakeholders in the longevity industry to connect, network, research and analyze.

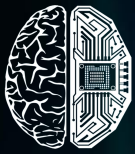
On the next stage this platform will also employ *cutting-edge data visualization software and a networking section* where various stakeholders within the longevity industry can connect and collaborate, where longevity companies are matched with the right investors, and where scientists can make contributions.



Website:
<http://aginganalytics.com>

Contact:
info@aginganalytics.com

Aging Analytics Agency aims to use its knowledge of anti-aging technologies and current research paradigms to create invaluable databases and provide a supporting framework for financial decision making. The goal of **the Agency** is to promote the growth of biogerontology, enhance international collaboration, and increase interaction and cooperation between companies to benefit the field as a whole.



DEEP
KNOWLEDGE
ANALYTICS



Biogerontology
Research Foundation
Prevent. Restore. Preserve.

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