

# INVESTMENT DIGEST TEASER

Longevity Industry Q4 2021

# TABLE OF CONTENTS

<b>Longevity Industry Overview</b>	3
<b>Investment Landscape</b>	24
<b>Leading Investors</b>	49
<b>Longevity Governance and National Healthcare Budgets</b>	62
<b>Longevity-Focused Financial Institutions</b>	87
<b>Publicly Traded Longevity-Focused Companies</b>	100
<b>Longevity IPOs in 2021</b>	104
<b>Insilico Medicine. Investment Case</b>	117
<b>Key Takeaways</b>	123
<b>About InvestTech Advanced Solutions</b>	128
<b>Disclaimer</b>	135

## Longevity Investment Digest at a Glance

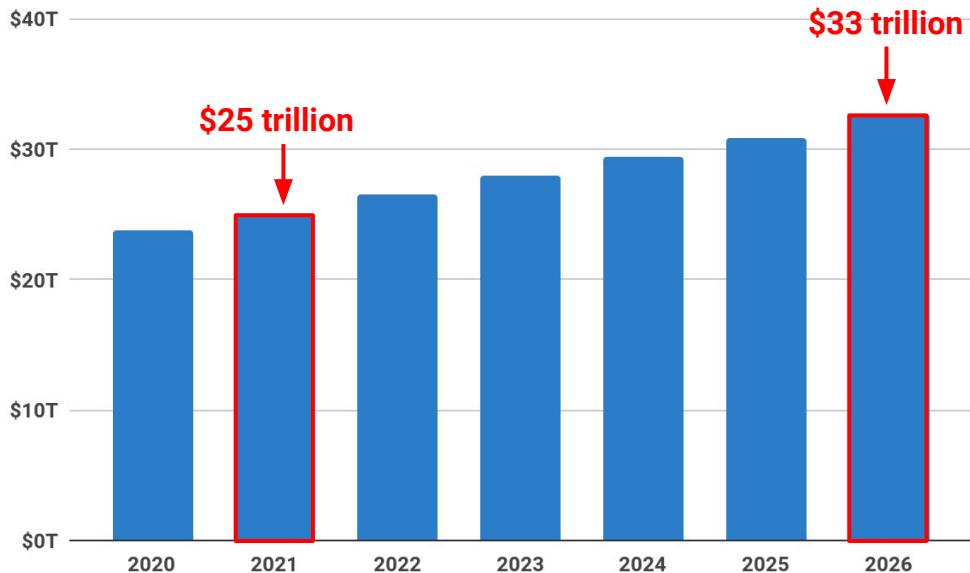
This Investment Digest summarizes key observations in the private equity and venture capital ecosystem of the rapidly evolving and exponentially growing Longevity Industry. This edition assembled information about key industry trends, more than 50,000 Longevity companies, 50 leading investors, and 495 Longevity-focused publicly traded corporations. There have also been outlined major investment rounds and relevant R&D trends, illustrating the industry's traction and readiness of institutional investors to potentially acquire the most successful startups, such as AgeTech, Longevity Fintech, and Longevity Biomedicine.

The COVID-19 pandemic has offered a lot of challenges to the industry, affecting global supply chains and the relevance of certain ventures. However, this pandemic presented many possibilities, such as developing the Longevity biomedicine sector. The public part of the Longevity industry increased by 20% during 2021. Though the growth in the Longevity market exceeds that of in the biotech and financial services markets, it still remains pretty volatile. 8 Longevity-focused companies launched their IPOs in Q4 2021, whereas more than a thousand of them received private equity investments. Longevity continues to be picked as a major topic of interest for panel discussions and entire conference series by top-tier finance and business media brands, including The Economist, Financial Times, and Bloomberg.

To sum up, the Longevity industry has shown a steady development in Q4 2021. The Investment Digest, now covering the double amount of companies since previous edition, will provide you with even more information about the Industry that is poised to witness a quantum leap in the near future.

# THE LONGEVITY ECONOMY ON A GLOBAL SCALE

## The Longevity Economy: Scale Projections, Trillion USD



The Longevity Economy's Scale Projections contains global healthcare spending affecting Longevity, the combined capitalisation of publicly listed Longevity companies, the capitalisation of Longevity-related insurance and reinsurance companies, banks and pension funds and privately held Longevity companies.

Not only does ageing pose one of the most acute problems of our time - it also presents one of the most promising opportunities. Financial institutions, such as investment banks, pension funds, and insurance companies can either sink or swim when hit by the oncoming Silver Tsunami. Whether they will succeed in riding the wave or end up drowning under it will depend not only on their willingness to deploy new business models adapted to population aging and emerging industries of AgeTech, WealthTech, and Longevity Finance, but also on the quality of Longevity analytics that they use to develop such business models.

We define the Longevity Industry as a combination of aging, advanced preventive precision biomedicine, AgeTech, relevant parts of national healthcare budgets, and the global financial industry related to such sub-industries.

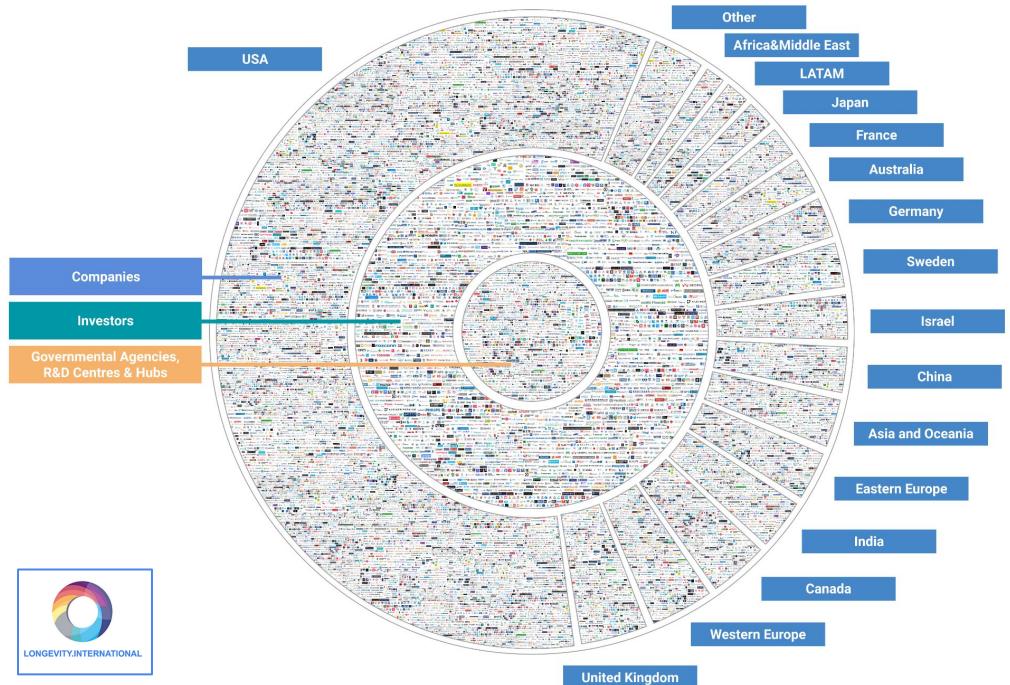
# GLOBAL LONGEVITY ECOSYSTEM 2021

50,000 Companies

9,000 Investors

1,000 Hubs

20 Sectors

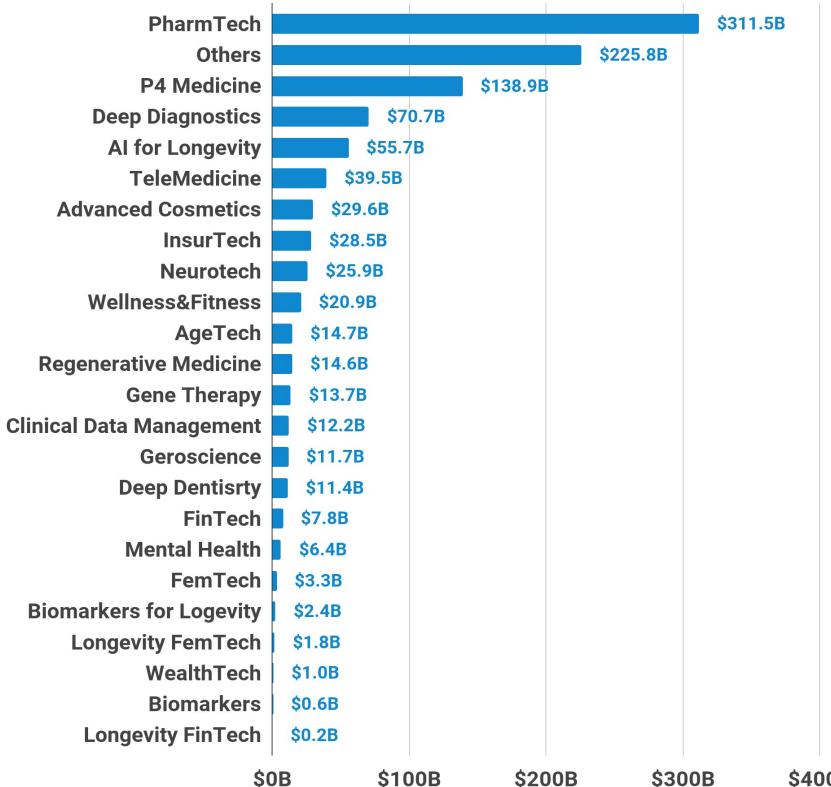


USA	UK
Canada	India
Japan	China
Sweden	Germany
Switzerland	Spain
CEE*	Singapore
Portugal	France
Brazil	Australia
MENA Region	EU

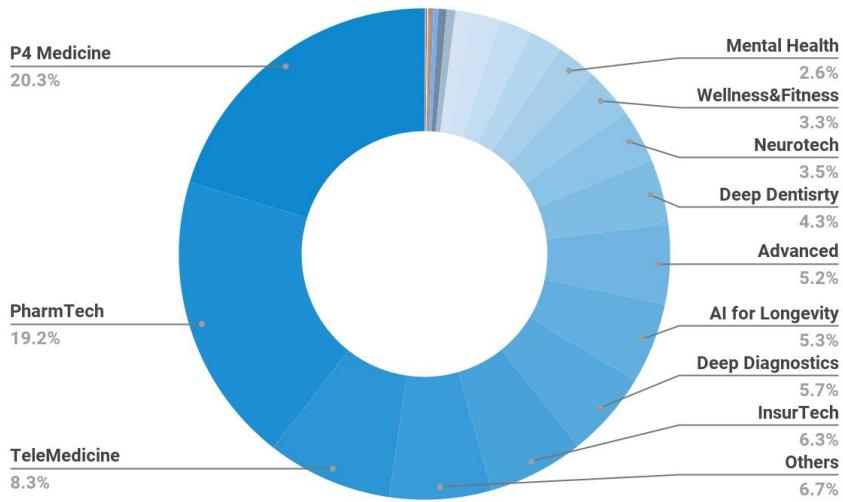
\* – Central and Eastern Europe

# INVESTMENTS IN LONGEVITY BY SECTOR

## Total Investments Raised by Longevity Companies



## Companies Distribution by Longevity Subsectors



**PharmTech** and **P4 Medicine** are Longevity sub-sectors involving the largest number of companies and receiving the highest volume of investments. The subsequent pages outline key trends of private investing for top 5 Longevity subsectors.

# BIGGEST FUNDING ROUNDS IN PRIVATE LONGEVITY COMPANIES

Biggest funding rounds of prominent companies:

- **Thermo Fisher Scientific**, a pharma services provider of laboratory information management & scientific data systems, has raised a total of \$6B in Post-IPO Debt funding over 1 round in Oct , 2021. Net proceeds will be used to pay a portion of the cash consideration payable for the pending acquisition of PPD and a portion of the offering for general corporate purposes.
- **Devoted Health**, a healthcare company serving seniors and giving them a health care plan with personal guides and world-class technology, raised \$1.2B Series D in 2021 to expand its services across the country.
- **BridgeBio Pharma**, focuses on genetic disease therapies and develops those assets with the right approach in supporting R&D, raised \$750M Post-IPO Debt in Nov 2021. The financing is expected to fully fund BridgeBio's portfolio of more than 30 drug development and discovery programs into 2024, independent of near-term milestone readouts.
- **Sarepta Therapeutics**, focuses on the discovery and development of precision genetic medicine to treat rare diseases, has raised a total of \$500M Post-IPO Equity round. Sarepta intends to use the net proceeds for the continuation of, and initiation of further, clinical trials, commercialization, manufacturing, business development activities, including the potential licensing or acquisition of complementary products, technologies and entities, and other general corporate purposes.
- **PharmEasy**, a health tech startup offering services such as teleconsultation, medicine deliveries, and diagnostic test sample collection, has raised \$350M in Pre-IPO round.

## Top 5 Investment Deals

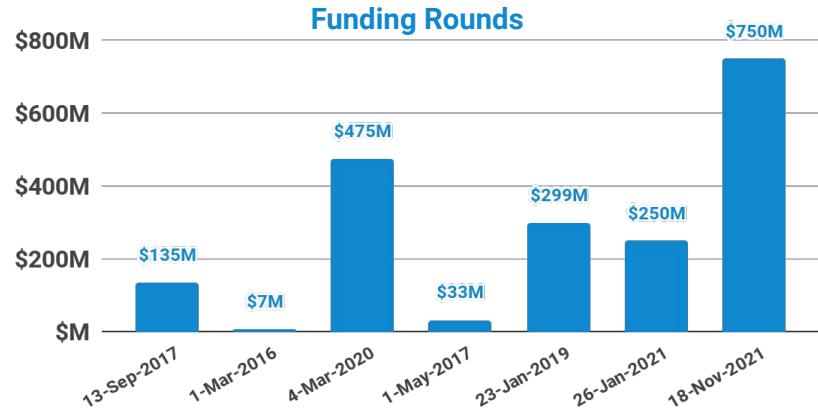


**1. Company description:** BridgeBio Pharma, Inc. is a US company founded in 2015. The company discovers and develops medicines that target well-characterized genetic diseases. Its product platform is divided into three key categories: Mendelian, Oncology and Gene therapy. BridgeBio Pharma's pipeline programs include product candidates ranging from early discovery to late-stage development.

**2. Financial position:** BridgeBio has raised a total of \$1.9 billion in funding over 8 rounds. With latest addition of \$750 million on November 18, 2021.

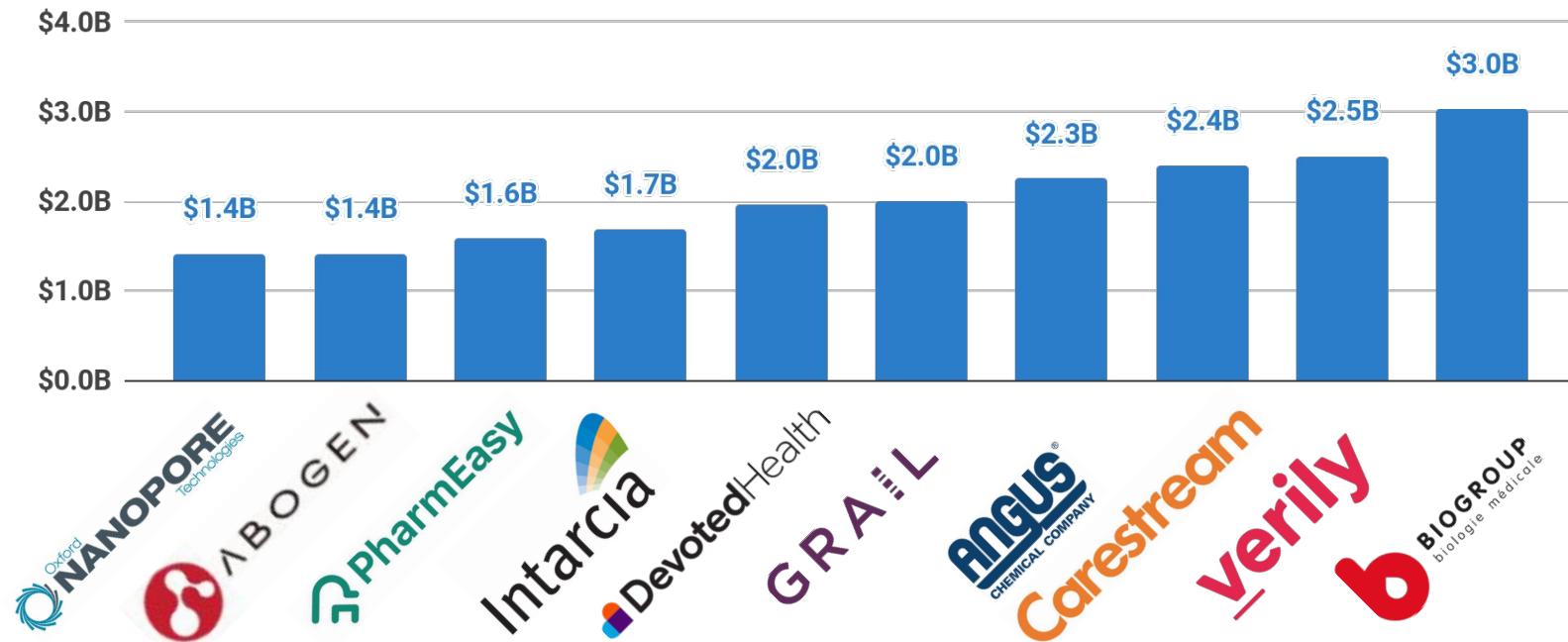
**3. Recent news/deals description:** China-based partner LianBio raised \$325 million in its initial public offering on November 1, 2021. BridgeBio is estimated to own approximately 4.7% post-IPO. BridgeBio and LianBio announced in August that the first patient was treated in a Phase 2a trial of infigratinib in patients with gastric cancer and other advanced solid tumors. LianBio in-licensed rights from BridgeBio for infigratinib for development and commercialization in Mainland China, Hong Kong and Macau.

**4. Summary:** BridgeBio has more than 30 programs in its pipeline for patients living with genetic diseases and cancers and 20 ongoing clinical trials underway across more than 450 sites around the world. Earlier this year BridgeBio received its first two Food and Drug Administration (FDA) drug approvals and has successfully filed 15 Investigational New Drug (IND) applications since its founding.



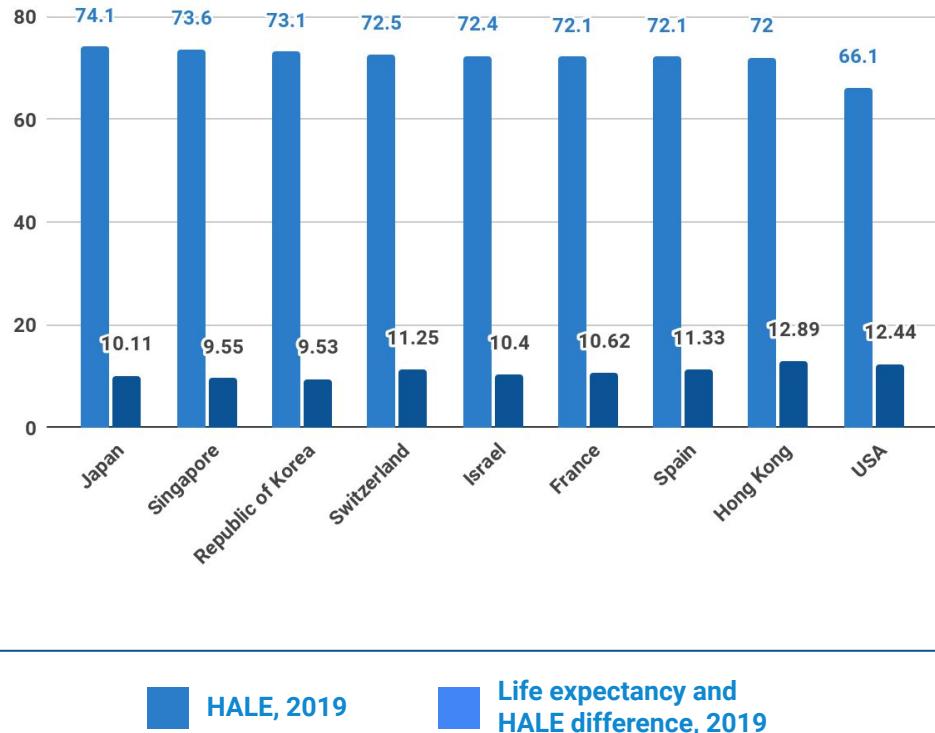
Round	Date	Top Investors
Post-IPO Debt	November, 2021	-
Series D	January, 2019	AIG Investments, Aisling Capital, Cormorant Capital, Hercules Capital, Kohlberg Kravis Roberts, Perceptive Advisors, Sequoia Capital, Viking Global Investors
Series C	September, 2017	AIG Investments, Aisling Capital, Cormorant Capital, Janus Fund, Kohlberg Kravis Roberts, Perceptive Advisors, Viking Global Investors
Series B	May, 2017	Kohlberg Kravis Roberts

# TOP 10 PRIVATE LONGEVITY-FOCUSED COMPANIES BY TOTAL INVESTMENTS AS OF Q4 2021



2021 demonstrates the lasting trend of boosted growth of the PharmTech market and the development of the Longevity sector. Pandemic has stimulated an increase in investments in the Longevity industry, where total funding of top 10 Longevity-focused companies exceeds **\$20.2B** as of December 30, 2021. BioGroup, the leader of rating, has raised a total of \$3B in funding over 3 rounds.

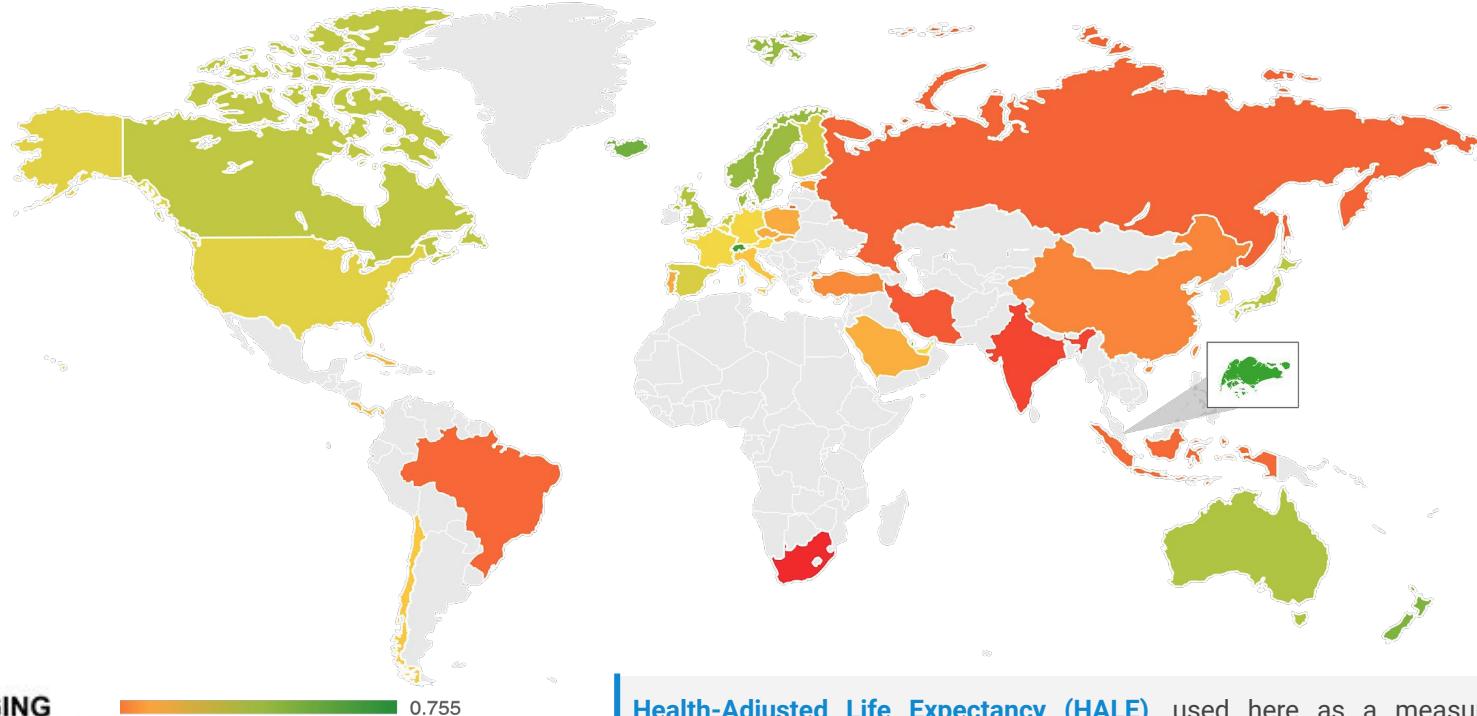
# LONGEVITY GOVERNANCE INDUSTRY: OVERVIEW



The main goal of the Longevity Governance Industry is to **reduce the gap between life expectancy and HALE** (Health-Adjusted Life Expectancy). Global Longevity Governance is a special analytical study that uses data across 50 countries to measure Healthy Longevity according to HALE. In so doing, it is able to identify the existing gaps between HALE and unadjusted life expectancy. All the parameters used in the report depend on the social policy, healthcare, medical, financial and socio-economic factors in a particular country. We provide an overview of countries with the lowest to highest HALE indicators.

**The lowest gap** between HALE and Life Expectancy is observed in **Singapore** where people tend to be wealthier and are, therefore, able to eat healthy food and have access to the best health care. However, this rule is not applicable to **the US**, which spends a significant amount of money on healthcare but still has a relatively low HALE. Countries in which people live in poor environmental conditions, do not have access to modern healthcare and appropriate nutrition also have a low HALE.

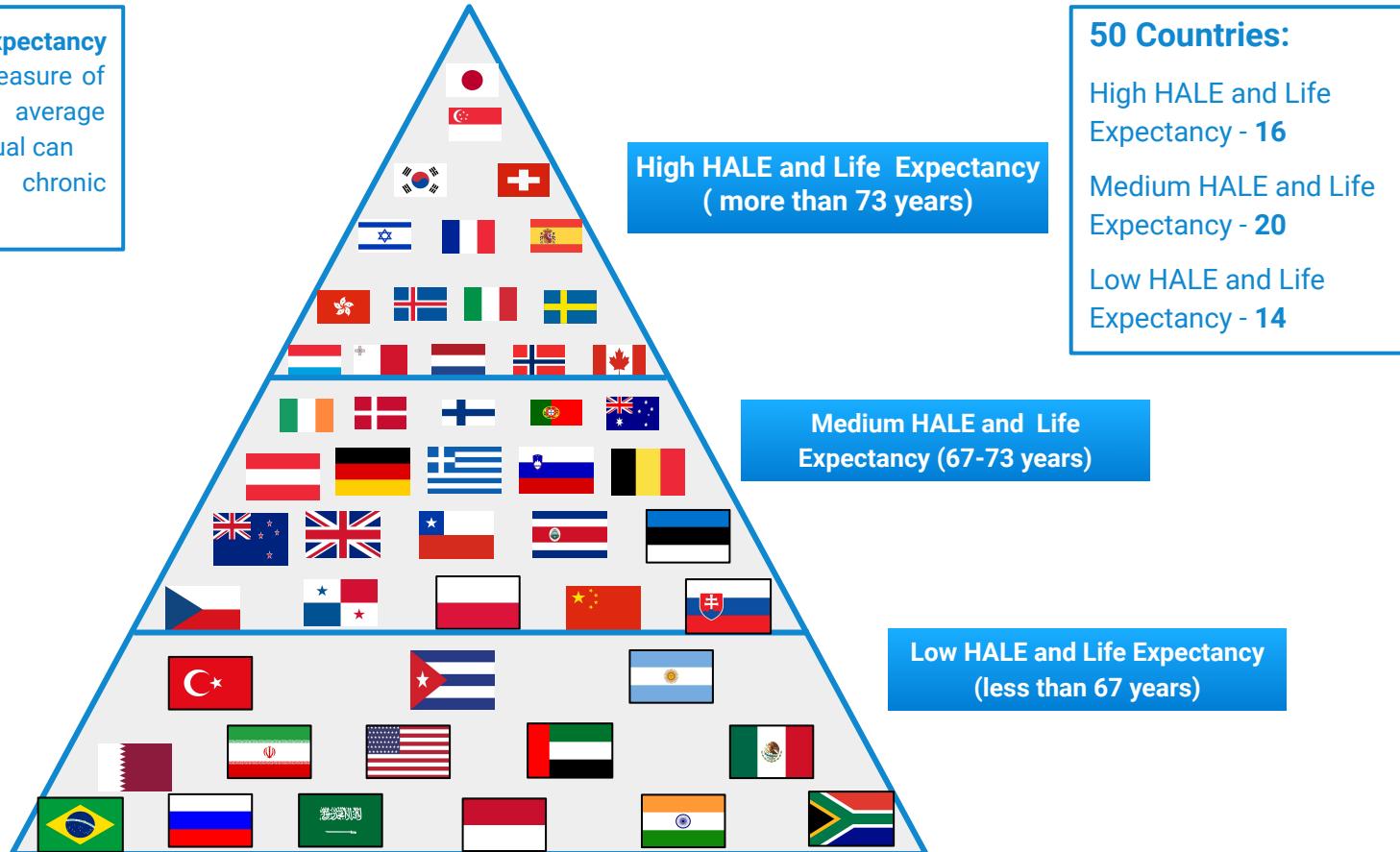
# HALE RANKING AND GAP ESTIMATION



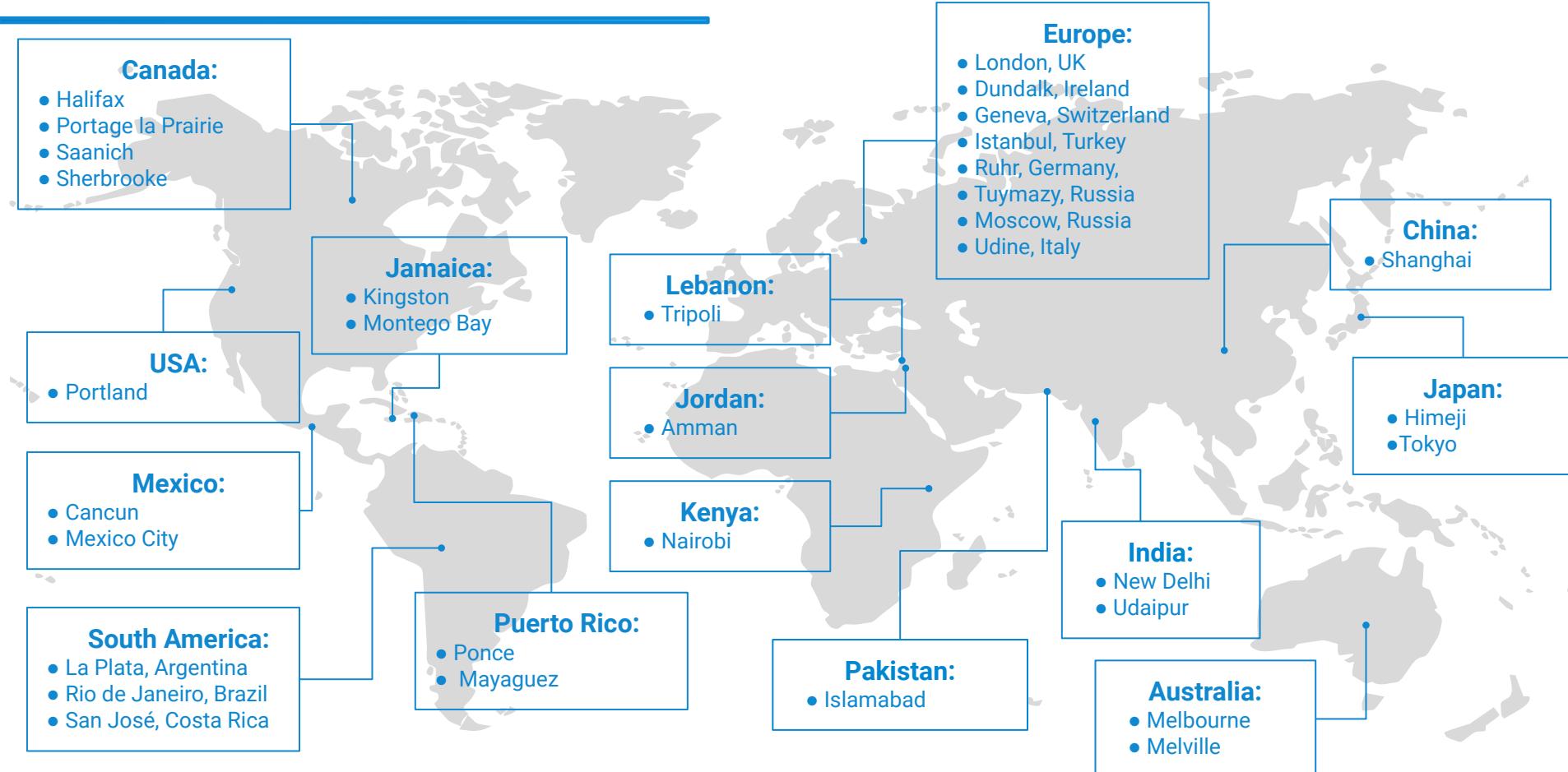
**Health-Adjusted Life Expectancy (HALE)**, used here as a measure of Healthy Longevity, is the average number of years an individual can expect to live free of chronic age-related disease.

# GLOBAL HEALTHY LONGEVITY LANDSCAPE OVERVIEW

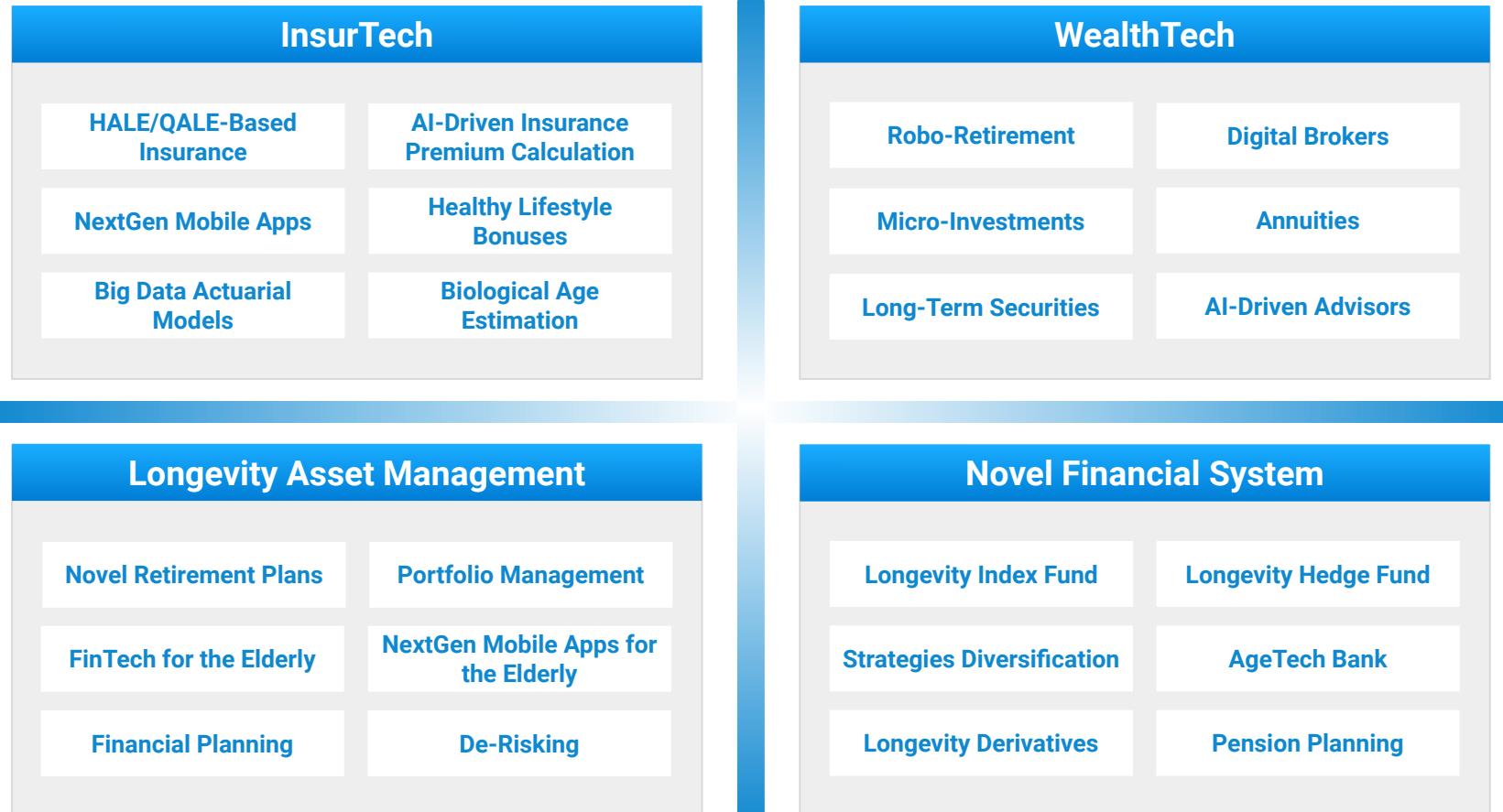
Health-Adjusted Life Expectancy (HALE), used here as a measure of Healthy Longevity, is the average number of years an individual can expect to live free of chronic age-related disease.



# PILOT 33 AGE FRIENDLY CITIES PROPOSED BY WHO IN 2007



# LONGEVITY FINANCIAL INDUSTRY FRAMEWORK



# TOP 300 FINANCIAL INSTITUTIONS ADVANCING THE LONGEVITY INDUSTRY

## 105 Asset Management Firms



## 75 Banks



## 55 Insurance Companies



## 20 Reinsurance Companies



## 45 Pension Funds



# TOP 20 FINANCIAL INSTITUTIONS BY STOCK EXCHANGE



## US-Based



Berkshire Hathaway (BRK-B)  
Market Cap: \$718B



JPMorgan Chase & Co. (JPM)  
Market Cap: \$497B



Bank of America Corp. (BAC)  
Market Cap: \$399B



## Canada-Based



Royal Bank of Canada (RY)  
Market Cap: \$165B



American Express (AXP)  
Market Cap: \$134B



The Blackstone Group (BX)  
Market Cap: \$142B



Morgan Stanley (MS)  
Market Cap: \$184B



Citigroup (C)  
Market Cap: \$134B



Goldman Sachs Group Inc. (GS)  
Market Cap: \$130B



Wells Fargo & Co. (WFC)  
Market Cap: \$223B



## UK-Based



HSBC Holdings (HSBC)  
Market Cap: \$142B

## Hong Kong (HKEX)



## China-Based



China Construction Bank (CHICHY)  
Market Cap: \$191B



China Merchants Bank (CIHKY)  
Market Cap: \$198B



Bank of China (BACHY)  
Market Cap: \$136B



AIA Group(AAGIY)  
Market Cap: \$128B



China Life Insurance (LFC)  
Market Cap: \$111B

## Australia (ASX)



## Australia-Based



Commonwealth Bank of Australia (CBA)  
Market Cap: \$127B

## China (SSE)



## China-Based



Ping An Insurance (PNGAY)  
Market Cap: \$147B



Agricultural Bank of China (ACGBY)  
Market Cap: \$163B

# LONGEVITY-FOCUSED FINANCIAL INSTITUTIONS: MARKET INDICES

Our Financial Institutions Index includes 182 Longevity-focused corporations operating in the financial sector.

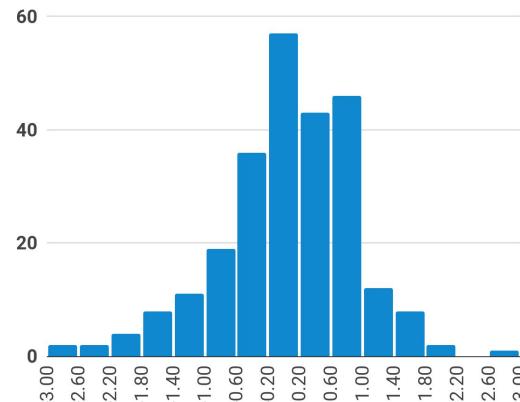
The index exhibits the returns close to the Nasdaq Bank Index.

While the volatility of such a Longevity-focused index is lower compared to Nasdaq Bank index but close to the S&P 500 Index, the distribution of the Longevity-focused index returns is left-skewed, which differentiates it from the vast majority of stock indices. That means that the extraordinary positive events are more likely to happen in Longevity sector compared to other market segments.

The distribution of Longevity-focused financial institutions stock returns cannot be referred to as normal but it is close to normal (kurtosis 1.11).

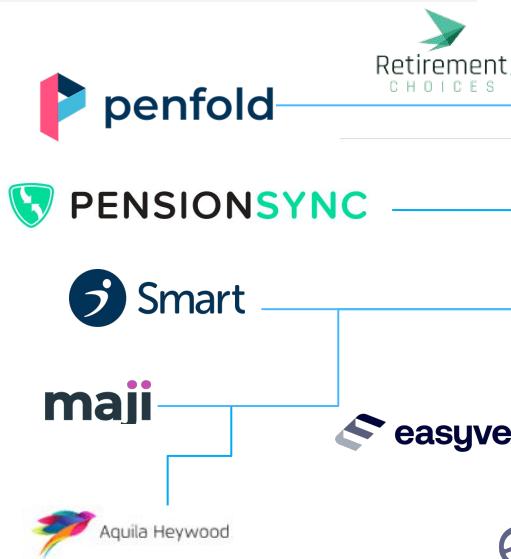
Index	Correlation with Financial Institution index	Average daily return in 2021	Average daily volatility in 2021	Skewness	Kurtosis
Financial Institutions Index	N/A	0.06	0.85	-0.48	1.11
S&P 500	-0.05	0.62	0.83	-0.41	0.84
Nasdaq Bank Index	0.80	0.12	1.67	0.09	1.08
SSE Composite Index	0.0	0.01	0.88	-0.30	0.41

Financial Institution Index Stock Returns



# MOST ADVANCED PENSION-TECH COMPANIES

Aging Analytics Agency has analyzed the most advanced pension-tech companies and concluded that the majority of them are based in the UK and EU.



# TOP 20 PUBLICLY TRADED LONGEVITY-FOCUSED COMPANIES

## NASDAQ



### US-Based

Turning Point Therapeutics (TPTX)  
Market Cap: \$3,363M

Fate Therapeutics (FATE)  
Market Cap: \$5,692M  
 Arena Pharmaceuticals (ARNA)  
Market Cap: \$3,661M

Gossamer Bio (GOSS)  
Market Cap: \$1,065M

One Medical (ONEM)  
Market Cap: \$4,239M

Tandem Diabetes Care (TNDM)  
Market Cap: \$8,220M

Vertex Pharmaceuticals (VRTX)  
Market Cap: \$47,273M

SAGE Therapeutics (SAGE)  
Market Cap: \$2,597M

Outset Medical (OM)  
Market Cap: \$2,257M

Kronos Bio (KRON)  
Market Cap: \$926.5M



### China-Based

BeiGene (BGNE)  
Market Cap: \$33,566M



### UK-Based

abcam (ABCM)  
Market Cap: \$4,910M

Freeline Therapeutics (FRLN)  
Market Cap: \$114M

Orchard Therapeutics (ORTX)  
Market Cap: \$260M

Autolus (AUTL)  
Market Cap: \$438M

## Euronext Brussel (BR)



### Switzerland-Based

Biocartis (BCART)  
Market Cap: \$254M

## Copenhagen (CPH)



### Sweden-Based

Getinge (GETI-B)  
Market Cap: \$10,760M

## Hong Kong (HKD)



### Hong Kong-Based

Endurance RP(ex-Regent Pacific Group)  
Market Cap: \$51M

Acquired

Deep Longevity  
Acquired by \$4M

## NYSE



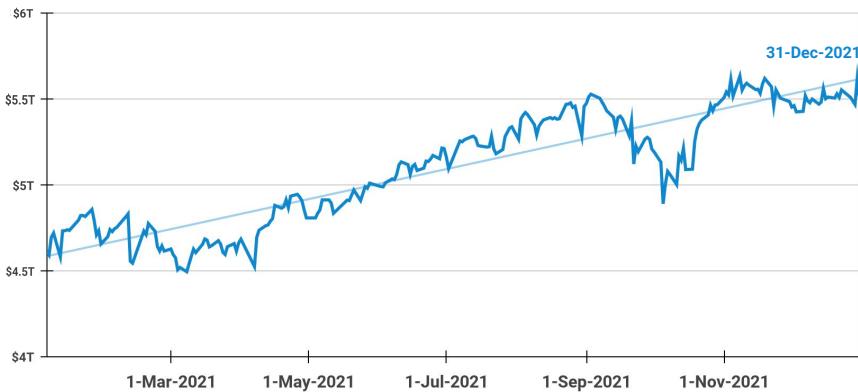
### US-Based

Amwell (AMWL)  
Market Cap: \$2,030M

Asensus Surgical(ex-TransEnterix) (ASXC)  
Market Cap: \$553M

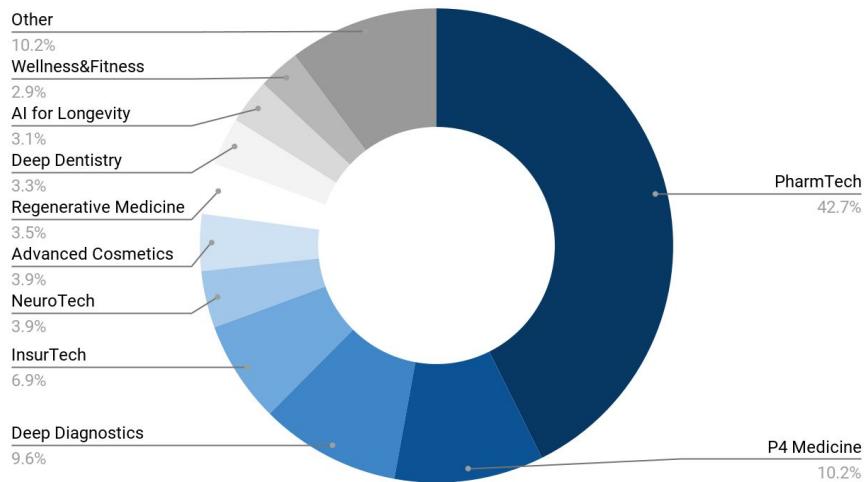
# LONGEVITY PUBLICLY TRADED COMPANIES

Cumulative Capitalization Dynamics, Trillions



The Longevity Industry has been actively growing over the whole 2021 and it is projected to evolve in the same trend. At the end of 2021, the market capitalization of **495 publicly traded companies** was **more than 5.5 trillion USD, making a 20% growth since the beginning of 2021**. Technologically, publicly-traded Longevity-focused companies are similar to other companies in the sector what means that their market capitalization growth can approximate the dynamics of the whole industry.

Distribution of Public Companies by Longevity Sectors



Among 495 Longevity-focused public companies, **PharmTech**, **P4 Medicine** and **Deep Diagnostics** are the most represented sectors by number of companies. As society's focus is shifting towards keeping older people healthy and active for longer, life sciences and tech-enabled solutions are key areas that are likely to attract even more investments in the near future.

# LONGEVITY IPO CANDIDATES

As of October 2021, over 400 Longevity companies have reached late-stage financing and are expected to tap IPO markets as the next steps. Below are some examples of Longevity companies who have either announced their IPO plans or viewed by market as potential IPO candidates.



## Total Funding Amount: \$1.6B

Online pharmacy **PharmEasy** has recently filed for an initial public offering of up to ₹6,250 crore (\$842.43 million). The company will be looking to invest ₹3,000 crore to fund organic and inorganic growth initiatives and other ₹1,929 crore will be spent for repaying its outstanding debt.

## TEMPUS



## Total Funding Amount: \$1.1B

**Tempus** uses artificial intelligence to provide physicians with clinical data that can be used to create customized treatments for patients. The company is considering a stock-market debut as soon as the first half of 2022.



## Total Funding Amount: \$946.7M

Pharmaceutical online retailer **Miaoshou Doctor** is considering an IPO, which could happen during Q1, 2022 in Hong Kong that could fetch at least \$500M.

## Total Funding Amount: \$905M

**Better.com** decided to take their company public earlier in 2021. Better will hit the public markets by merging with Aurora Acquisition Corp in a SPAC deal that values it at \$7.7B.



## elevatebio

## Total Funding Amount: \$876.1M

Direct-to-consumer telehealth health startup **Ro** is reportedly in talks to go public through a merger with SPAC. Reuters reported that the deal could value Ro at more than \$5B.



## Total Funding Amount: \$2B

**Devoted Health**, a health insurance startup that focuses on Medicare Advantage plans, has raised up to \$1.2B in new series D funding round at around an \$11.5B valuation.



## XtalPi

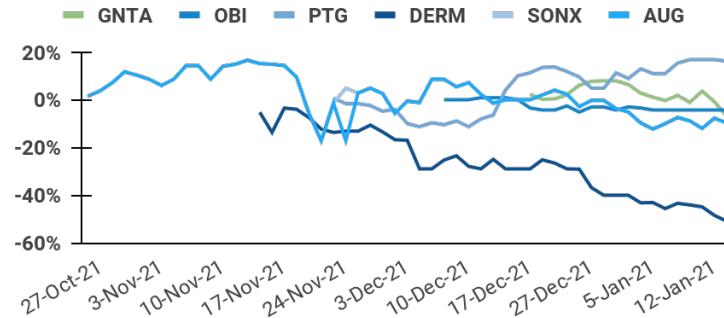
## Total Funding Amount: \$1.6B

**XtalPi**, AI drug discovery company intends to use part of the proceeds from the latest \$400m Series D round. The startup already counts Google, SoftBank, and Tencent among its backers, with XtalPi turning to Goldman Sachs in July to find new investors ahead of an IPO.

# LONGEVITY IPOS IN Q4 2021

There are a few signs pointing to continued **acceleration** in the biotechnology market. First, the biotechnology market adoption appears to be stabilizing at a 'new normal' following the onset of the COVID-19 pandemic. **More and more** biotechnology companies are **hitting** the **public markets** in 2021. In **Q4-2021**, **eight biotechnology** companies successfully completed an **IPO** including **reverse merger**.

## IPOs Q4 Price Returns



Name	Ticker	Country	Funding Amount, \$M	IPO Date	Capitalization, \$M	Valuation at IPO, \$M	IPO Share Price, \$	Current Share Price, \$	EV/EBITDA	Net Income (TTM), \$M
<b>Exscientia</b>	EXAI	UK	350	01.10.21	2.263	2.900	22	18.80	-64.70	-35
<b>Rovant Sciences</b>	ROIV	USA	611	01.10.21	5.501	7.300	9.35	7.95	N/A	-1.060
<b>Augmedix</b>	AUGX	USA	99.7	26.10.21	124	148	4	3.35	-10.29	-16.1
<b>Sonendo</b>	SONX	USA	271	29.10.21	215	315	12	8.17	-5.61	-47.3
<b>Journey Medical</b>	DERM	USA	18.9	17.11.21	85	124	10	5.11	-11.73	-19.7
<b>Poltreg</b>	PTG	Poland	0.06	23.11.21	88	23	18	17.50	-94	-0.44
<b>Ondine Biomedical</b>	OBI	USA	0.8	06.12.21	145	-	-	74.52	-15	-4.51
<b>Genenta Science</b>	GNTA	UK	33.9	15.12.21	185	-	11.5	10.21	-26.87	-7.16

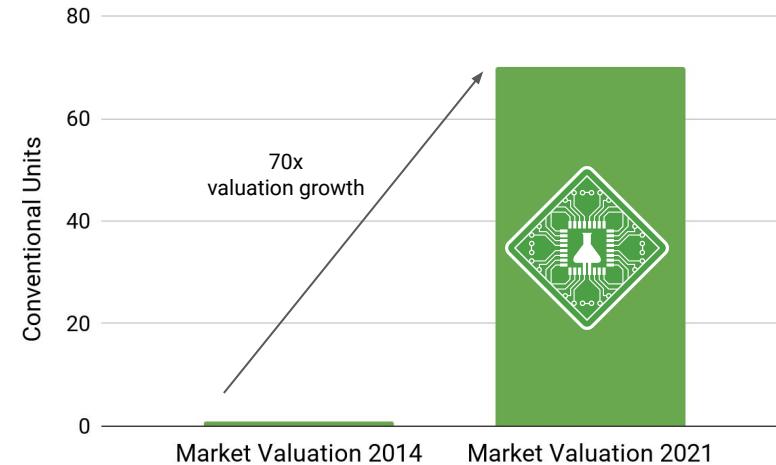
# INSILICO MEDICINE VALUATION GROWTH SINCE DEEP KNOWLEDGE GROUP'S INVESTMENT

In 2014 Insilico Medicine was a little-known biotech startup that suggested a computational alternative to animal testing for research and development programs in the pharmaceutical industry by using artificial intelligence.

Deep Knowledge Group was one of the first investors who put their attention on the AI in Pharma sector. We foresaw the potential of Insilico Medicine's idea at the dawn of the industry, 4 years before the concept of AI in Pharma existed as an investable industry for institutional investors.

In 2018, Insilico Medicine succeeded in conducting groundbreaking scientific research on the design of a novel drug by AI in just 21 days, and preclinical validation just 25 days thereafter. In 2019, Insilico Medicine successfully conducted a Series B funding round, which secured the company \$37 million. In 2021, Insilico Medicine announced a \$255 million Series C funding round with Warburg Pincus as lead investor. This deal is evidence that the company's AI-based platform can create a new target for a disease, develop a bespoke molecule to address it and bring it through the clinical trial process at a fraction of the cost of traditional approaches in the Pharmaceutical Industry. Insilico has become one of the most high-profile companies in the Pharmaceutical Industry on a new market that was spawned and inspired by it.

## Insilico Medicine Valuation Dynamic 2014 vs. 2021



Insilico Medicine's valuation has grown 70x in 7 years, showing remarkable growth, especially for a company operating on the frontier of the drug development industry

# OUR INVESTMENT TRACK RECORD: INSILICO MEDICINE



英科智能  
Insilico Medicine

Deep Knowledge Group was first to invest in Insilico Medicine

2014 Seed and Convertible Notes	2018 Round A	2019 Round B	2021 Round C	2022-2023 IPO
 <p>DEEP KNOWLEDGE VENTURES</p> <p>Insilico Medicine is an artificial intelligence company headquartered in Hong Kong, which pioneered the applications of the generative adversarial networks (GANs), reinforcement learning, transfer learning and meta-learning for the generation of novel molecular structures for diseases with known and unknown targets.</p>	<p>\$13M</p> <p> 華明康德 <b>WuXi AppTec</b></p> <p></p> <p><b>JUVENESCENCE</b></p> <p></p> <p><b>TEMASEK HOLDINGS</b></p> <p></p> <p><b>BOLD CAPITAL PARTNERS</b></p>	<p>\$37M</p> <p></p> <p></p> <p><b>SINOVATION VENTURES</b></p> <p></p> <p><b>Oculus</b></p> <p></p> <p><b>LONGEVITY VISION FUND</b></p> <p></p> <p><b>Baidu.ventures</b> 百度风投</p> <p></p> <p><b>JUVENESCENCE</b></p> <p></p> <p><b>8<sup>∞</sup> EIGHT ROADS™</b></p> <p>Lilly Asia Ventures</p> <p></p> <p><b>F-PRIME</b></p> <p><b>BOLD CAPITAL PARTNERS</b></p>	<p>\$255M</p> <p><b>WARBURG PINCUS</b></p> <p></p> <p><b>LAKE BLEU CAPITAL</b> 清池资本</p> <p></p> <p><b>PAVILION CAPITAL PARTNERS</b></p> <p></p> <p><b>B Capital Group</b></p> <p></p> <p>礼来亚洲基金</p> <p></p> <p><b>Maison Capital</b></p> <p></p> <p><b>8<sup>∞</sup> EIGHT ROADS™</b></p> <p></p> <p><b>OrbiMed</b> Healthcare Fund Management</p> <p></p> <p><b>Baidu.ventures</b> 百度风投</p> <p></p> <p></p> <p><b>FORMIC VENTURES</b></p>	<p>IPO planned for 2022</p>

# MAJOR OBSERVATIONS FOR 2021: KEY BUSINESS TAKEAWAYS

1. The **Longevity** market is not only limited to anti-aging applications of life sciences. It also includes some new sectors of the **financial industry**, as well as **government projects** (national Longevity development plans); hence, its overall size potentially **exceeds \$25 trillion**.
2. The COVID-19 pandemic has given a boost not only to the growth of the biotech capital market, but also to the development of the Longevity biomedicine sector, resulting in an increase of more than **30%** (compared to the previous year).
3. The **undisputed** leader in the Longevity sector is the **US** which has a total of **\$629 billion** invested in 26,654 companies followed by **China** with **\$164 billion** invested in 2,158 companies.
4. **PharmTech** and **P4 Medicine** are Longevity sub-sectors involving the largest number of companies and receiving the highest volume of investments with total investment of **\$311.5B** and **\$138.9B**, respectively. Among 495 Longevity-focused public companies, **PharmTech, P4 Medicine and Deep Diagnostics** are the most represented sectors by number of companies.

All takeaways are presented in the full version of this report.

# OBSERVATIONS IN 2021: KEY FINANCIAL AND INVESTMENT TAKEAWAYS

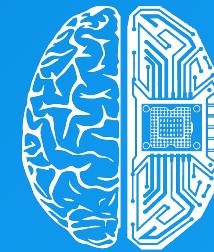
1. **Thermo Fisher Scientific** has raised a total of **\$6 billion** which is the biggest funding round among Longevity-based biotechnology companies in 2021. The smallest-size deal belongs to **OncoMyx Therapeutics** with **\$50 million** from Series B round.
2. **PharmTech** is becoming a lucrative area for specialized biotech investors and investment funds (VCs) just entering the pharma space to include high-risk/high-return companies in their investment portfolios (total investment is **\$312 billion**). **CareStream** which provides imaging and IT systems for medical and life sciences sectors received the biggest investment (**\$2.4 billion**) among PharmTech companies. Another Longevity sub-sector to receive decent investment is **P4 Medicine (\$138.9 billion)**.

All takeaways are presented in the full version of this report.



**AGING  
ANALYTICS  
AGENCY**

[info@aginganalytics.com](mailto:info@aginganalytics.com)  
[www.aginganalytics.com](http://www.aginganalytics.com)



**InvestTech  
Advanced  
Solutions**

[info@invest-solutions.tech](mailto:info@invest-solutions.tech)  
[www.invest-solutions.tech](http://www.invest-solutions.tech)

## Aging Analytics Agency (AAA) & InvestTech Advanced Solutions (ITAS) Disclaimer

The information and opinions in this report were prepared by Aging Analytics Agency and InvestTech Advanced Solutions. The information herein is believed by AAA and ITAS to be reliable but AAA and ITAS makes no representation as to the accuracy or completeness of such information. There is no guarantee that the views and opinions expressed in this communication will come to pass. AAA and ITAS may provide, may have provided or may seek to provide advisory services to one or more companies mentioned herein. In addition, employees of AAA and ITAS may have purchased or may purchase securities in one or more companies mentioned in this report. Opinions, estimates and analyses in this report constitute the current judgment of the author as of the date of this report. They do not necessarily reflect the opinions of AAA and ITAS and are subject to change without notice. AAA and ITAS has no obligation to update, modify or amend this report or to otherwise notify a reader thereof in the event that any matter stated herein, or any opinion, estimate, forecast or analysis set forth herein, changes or subsequently becomes inaccurate. This report is provided for informational purposes only. It is not to be construed as an offer to buy or sell or a solicitation of an offer to buy or sell any financial instruments or to participate in any particular trading strategy in any jurisdiction.