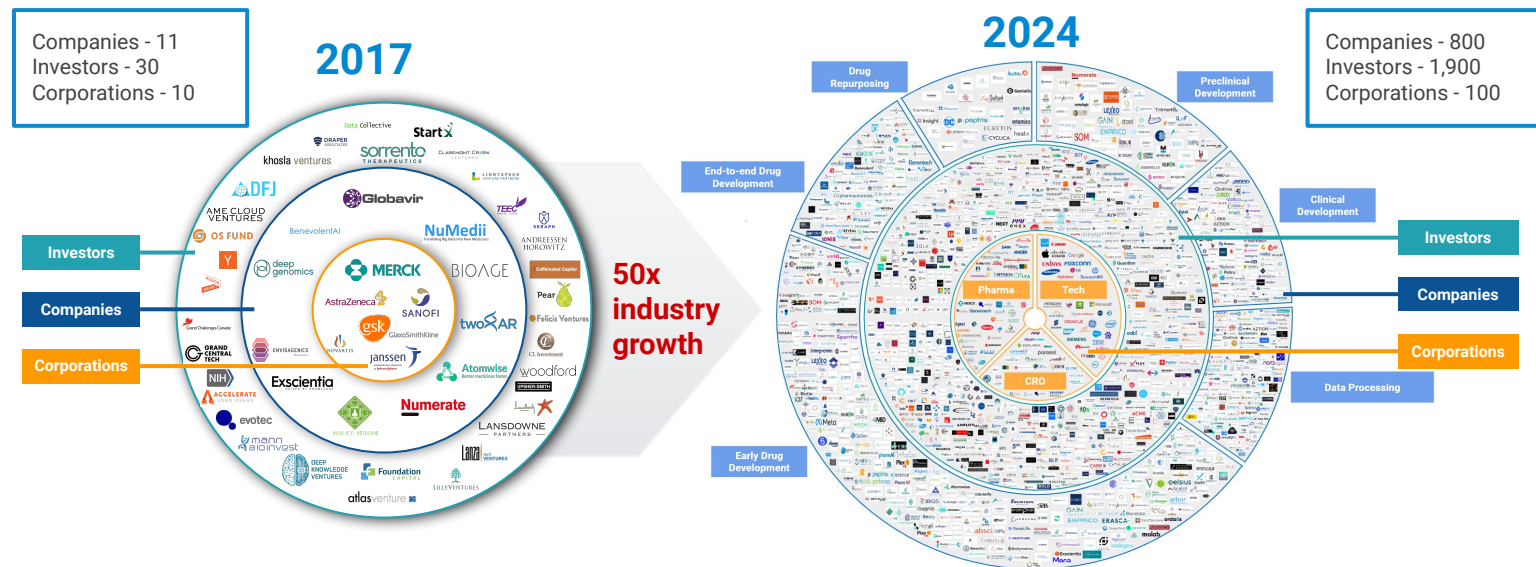


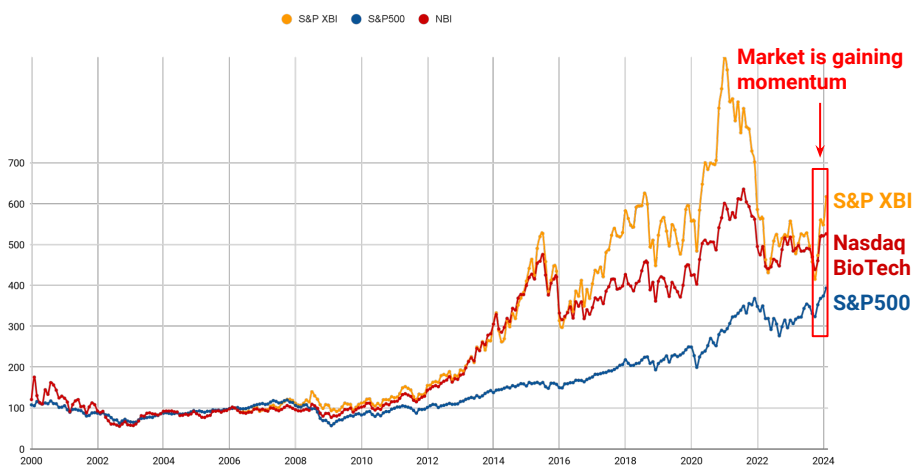
AI application is becoming an integral part of the pharmaceutical industry as a larger number of companies implement it into the technological pipeline and R&D process. **Within a 7-year period, the industry has grown 50x times**, opening up new opportunities for further market institutionalization and, as a result, attracting new investments.

AI Pharma Demonstrates an Incredible Market Growth over a 7-year Period



Steady Growth of Indices Signals a Slow Market Recovery in 2024

AI Pharma Public Market is Gaining Momentum



Note: This chart shows the performance of three indices rebased to Feb. 2006. Significant to note that S&P XBI consists of the smaller number of companies than Nasdaq BioTech index.

Source: Financial Times, Yahoo Finance

The **Nasdaq Biotechnology Index surged 40% through February and March 2024**, after plunging to an almost seven-year low in late October 2023.

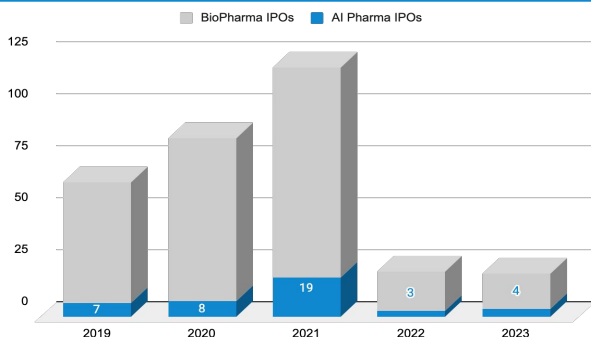
Moreover, **the index has already reached its highest level in 2022 and has been growing positively for 4 months**. Certainly, it would be premature to predict the quick industry's recovery to its peak in 2021. Any recovery is likely to be slow, with bumps along the way. Interest rates and inflation might be moving in a more favourable direction, but the world's post-pandemic economies remain vulnerable to shocks.

In addition to the indices, **the market recovery is also evidenced by such vital indicators as the growth in the number of IPOs, M&A deals, and the revival of the private equity market with the growth of VC investments**. All these parameters are analyzed in detail below.

The time of gradual market recovery is always an opportunity for mature companies that successfully apply generative AI to develop its technologies to strengthen their market positions.

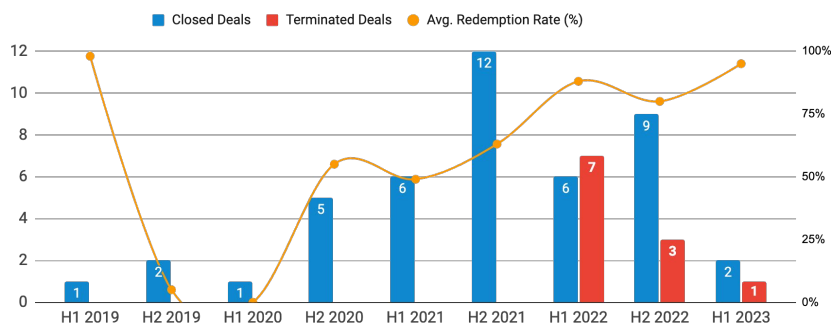
AI Pharma IPOs are on the up – Vital Sign of the Industry Improvement

Dynamic of Biopharma and AI Pharma IPOs



Source: Yahoo Finance

Dynamic of Biopharma SPAC Deals

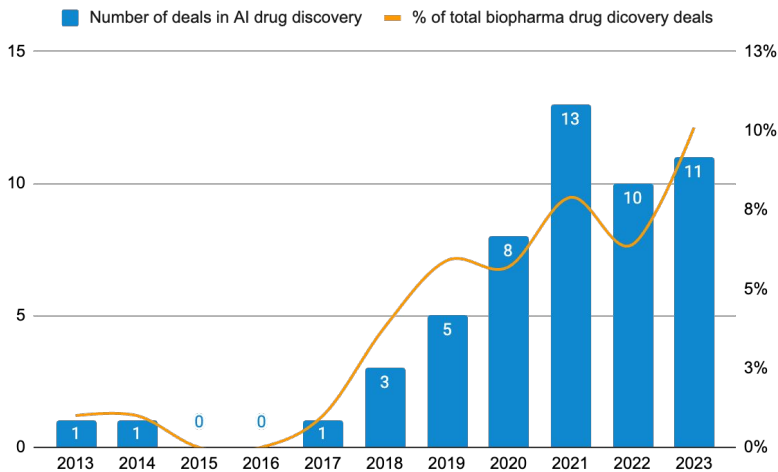


Source: SPAC Research Data

The number of Biopharma IPOs in 2023 decreased, but the amount raised during the IPOs almost doubled compared to 2022 and amounted to \$1.9B. The **number of AI in Pharma IPOs continues to grow** after the market crash in 2021. As of now, two more companies - **Insilico Medicine and Xtalpi Technology** - have planned an IPO in 2024 on the Hong Kong Stock Exchange. **Return of crossover investors** - public investors that help groups float by backing large, late private financing rounds and **democratization of the IPO requirement for the Hong Kong Exchange** will drive this trend up. In contradiction to the dynamics of IPOs, **proposed Spac acquisitions are falling apart in increasing numbers**, and redemption rates of close to 100% are now far from rare. Therefore, **investments in mature pre-IPO companies are becoming more profitable**.

AI Pharma M&A Deals Upward Trajectory

Number of AI Drug Discovery Deals and % of Total Biopharma Deals



Source: Citeline Biomedtracker, CBInsights, PwC research. Note: this data may not capture very small deals, it still might serve as a proxy for M&A activity in the industry.

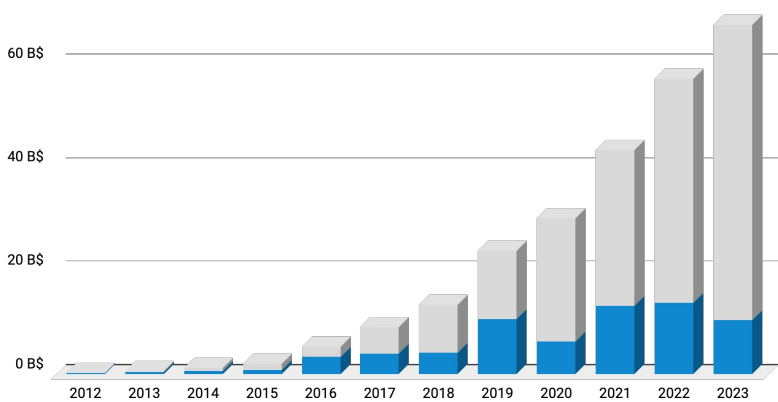
Pharma companies have recognised the potential impact AI can have on their drug discovery efforts, and have started to drive numerous internal projects and initiatives to build up their capabilities and develop real applications. **Sanofi has recently been the most active in partnering**, with approximately ten published partnerships, reflecting its “all-in” approach to AI and data science.

Over 90% of deals have taken place since 2018. In this period, AI-related deals correspond to about 4.7%-6.6% of the total deal volume in biopharma as published in Biomedtracker. **Moreover, in 2023 identified eleven deals (about 11% of the total volume).** The biggest deal in Pharma also took place in 2023, with BioNTech’s acquisition of InstaDeep for \$540M leading the field. **The largest deal in the AI Pharma deal was conducted by Valo Health in 2021.** The company acquired Courier Therapeutics for \$510M.

In summary, **the M&A market is small, but heating up:** while the number of M&A transactions related to AI in drug discovery is still small, **increasing momentum is reflected in growing deal volumes and larger deal sizes.** Both the number and size of deals to increase in the next five years.

Positive Dynamic of the Investment in AI Pharma Companies

Dynamic of Investments in AI Pharma Companies, \$B



Source: Pitchbook, Crunchbase

Capital inflow into AI-driven Pharma firms surged significantly since 2015. In eleven years, investments in 800 companies soared almost 60 times, hitting \$24.62B by December 2022.

The peak was in 2021, with \$9.66B invested in AI Pharma companies. However, amidst the global economic downturn, 2022 witnessed a plunge to \$3.63B, 2.6 time less than 2021. Despite this, by December 2022, total investments stood at \$24,62B.

In 2023, there was a rebound, showcasing positive growth, with investments totalling \$10.39B, culminating in a cumulative investment of \$67.56 by year-end. This market growth shows that in times of market volatility, **investors invest small amounts of money in mature companies because they trust their technology and process management.**

Comparison of Top-40 Leading AI Pharma Companies with Expertise in Drug Discovery R&D

	Advanced AI tools for specific Use Cases	Advanced AI systems with multiple models	End-to-end AI
Clinical pipeline (phase 1-2)	bioRxel therapeutics, freenoma, C4X Discovery (Better, Safer, Faster), PHARNEXT, PathAI	MindRank, nimbus THERAPEUTICS, BERKELEY LIGHTS, Delta4, healx, ConcertAI, turbine, BIOAGE labs, XtalPi, Schrödinger, AURANSA	Neumora, Insilico Medicine (英科智能), BERG, Valo, RECURSION pharmaceuticals, ardigen, BenevolentAI, Exscientia
Validated R&D Use cases and preclinical pipeline	GENOMENON, MENDEL, LifeMine, ENVISAGENICS, metagenomi, AbCellera, CloudPharmaceuticals, ReviveMed, BenchSci, BEACON BIOSIGNALS	TERRY, Standigm, 3BIGS, CYCLICA, IKTOS, Inveni AI, DEARGEN, Atomwise	absci, CytoReason, deep genomics, OWKIN, insitro