



EMERGING TECH RESEARCH

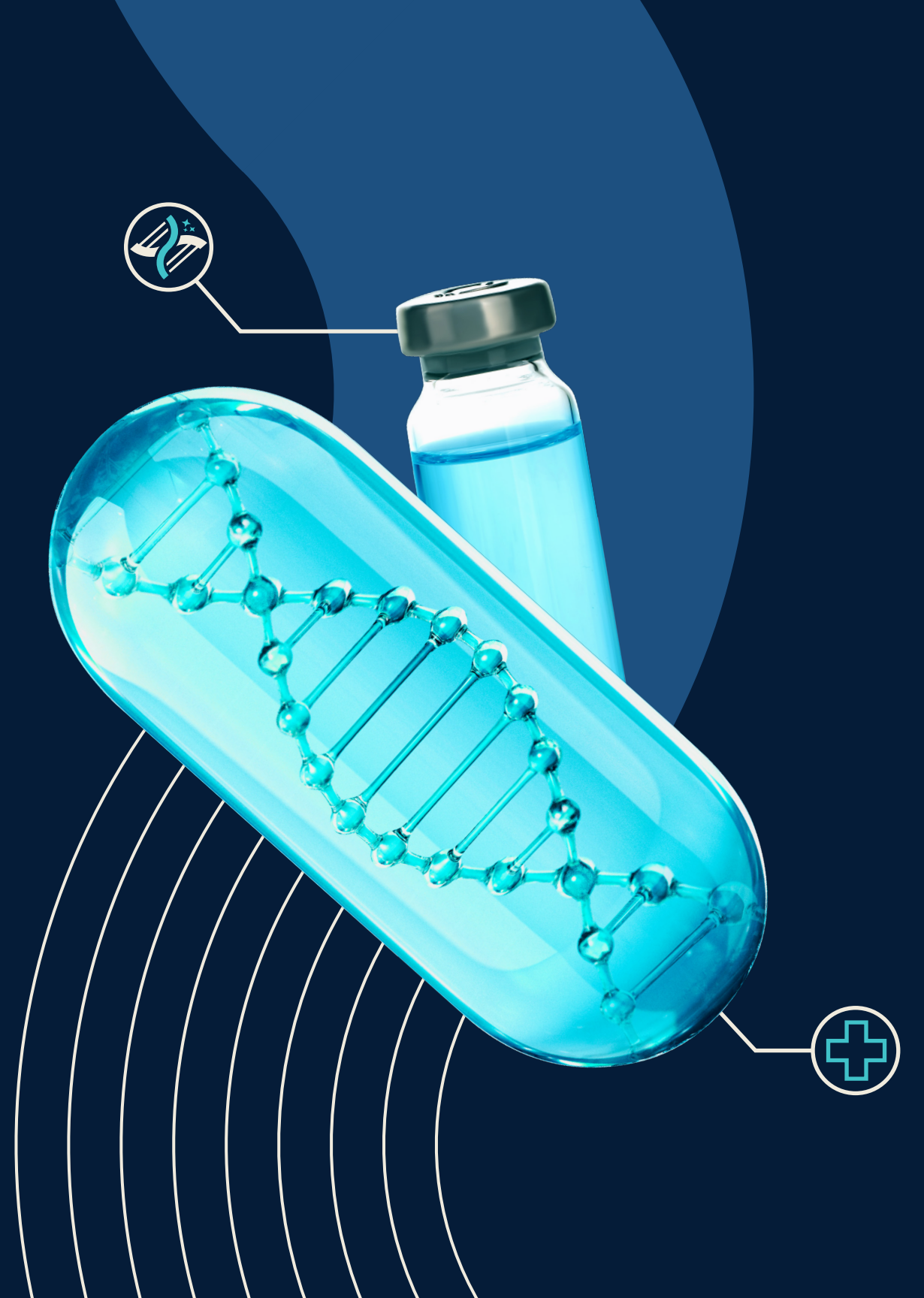
# Launch Report: Biopharma

VC trends and emerging opportunities

**Q3**  
2023

## REPORT PREVIEW

The full report is available through the PitchBook Platform.





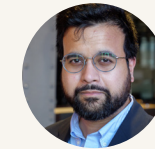
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We are adding PitchBook Exit Predictor probabilities to our Emerging Technology Research reports. PitchBook's proprietary [VC Exit Predictor](#) estimates the probability that a startup, or VC-backed company, will successfully IPO, be acquired, or merge. The tool is available exclusively to PitchBook clients. Additionally, we have launched a [pre-seed report methodology](#) to more accurately and comprehensively capture deals from the earliest phase of venture. Going forward we will sunset "angel" as a specified stage of venture in all of PitchBook's venture-focused reports.

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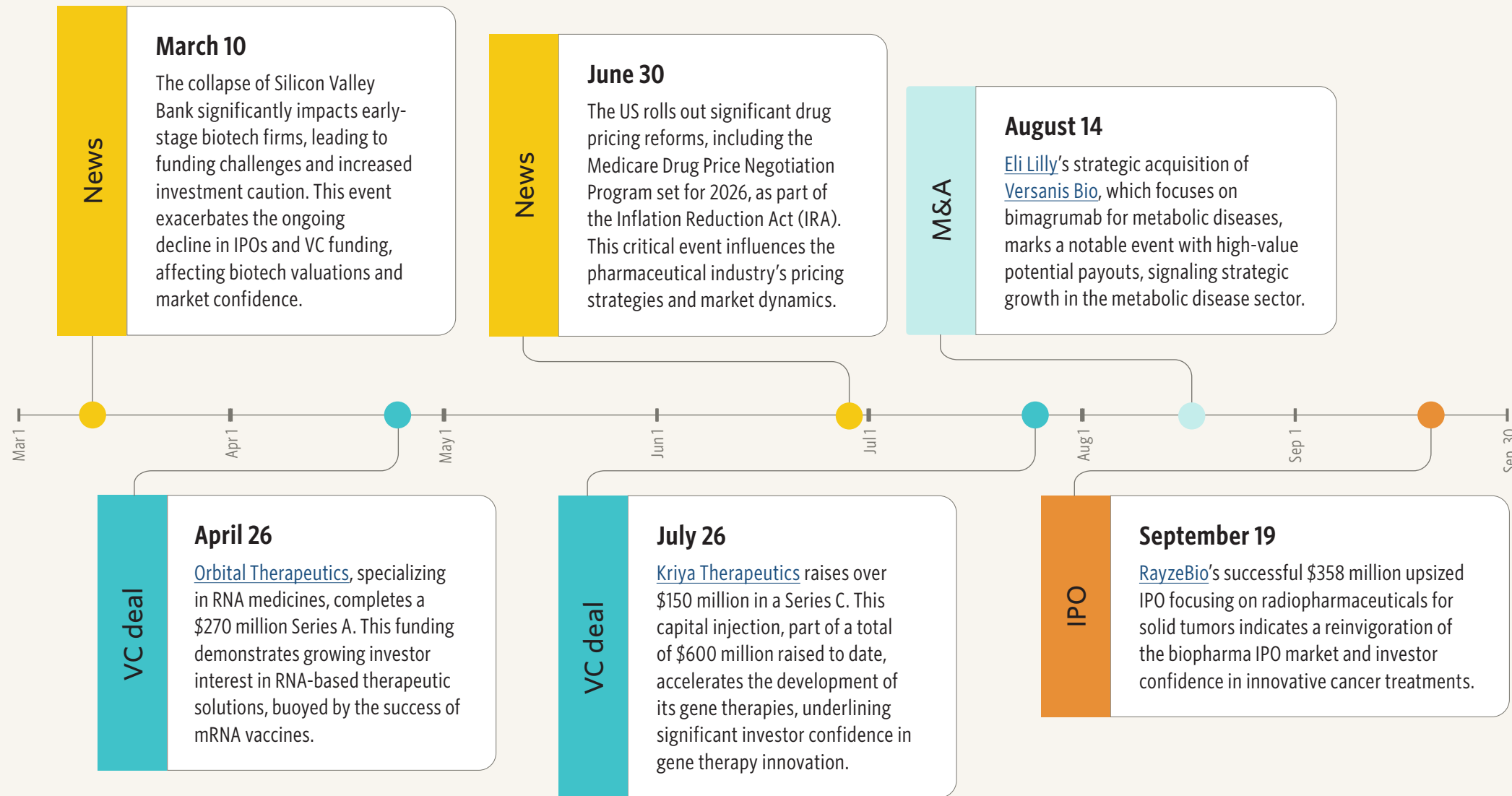
## Publishing

Report designed by **Drew Sanders** and **Chloe Ladwig**

Published on December 6, 2023



# Q1 to Q3 2023 timeline



## Q3 VC deal count summary

**178**  
total deals

**-19.8%**  
QoQ growth

**-25.2%**  
2023 YoY growth

**-26.7%**  
2023 YTD growth

## Q3 VC deal value summary

**\$6.5B**  
total deal value

**4.2%**  
QoQ growth

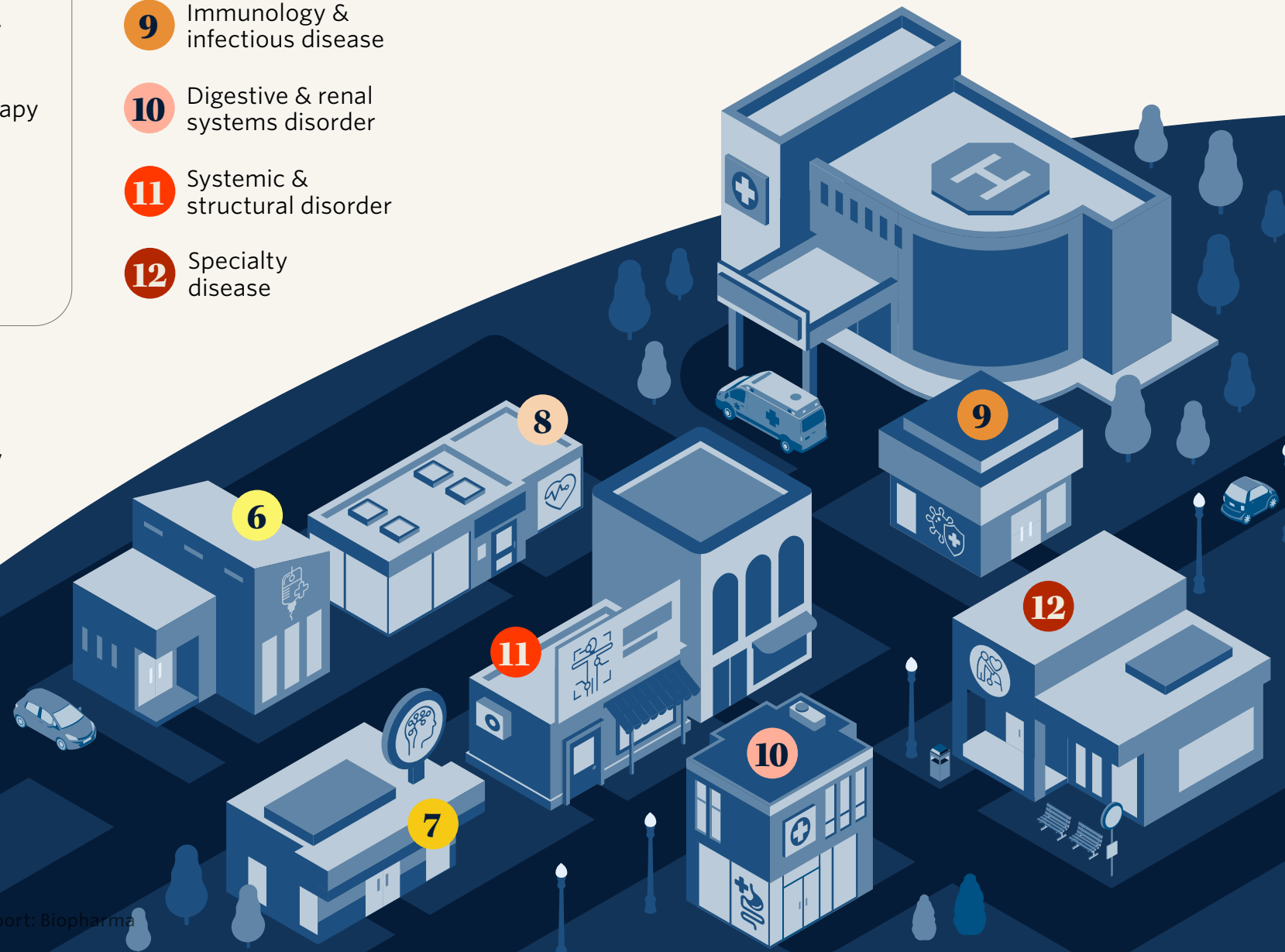
**-3.9%**  
2023 YoY growth

**-35.8%**  
2023 YTD growth



# Biopharma landscape

- 1 Cell therapy
- 2 Chemistry
- 3 Gene therapy
- 4 Biologics
- 5 Emerging therapy
- 6 Oncology
- 7 Neurology
- 8 Cardiovascular & metabolic disease
- 9 Immunology & infectious disease
- 10 Digestive & renal systems disorder
- 11 Systemic & structural disorder
- 12 Specialty disease

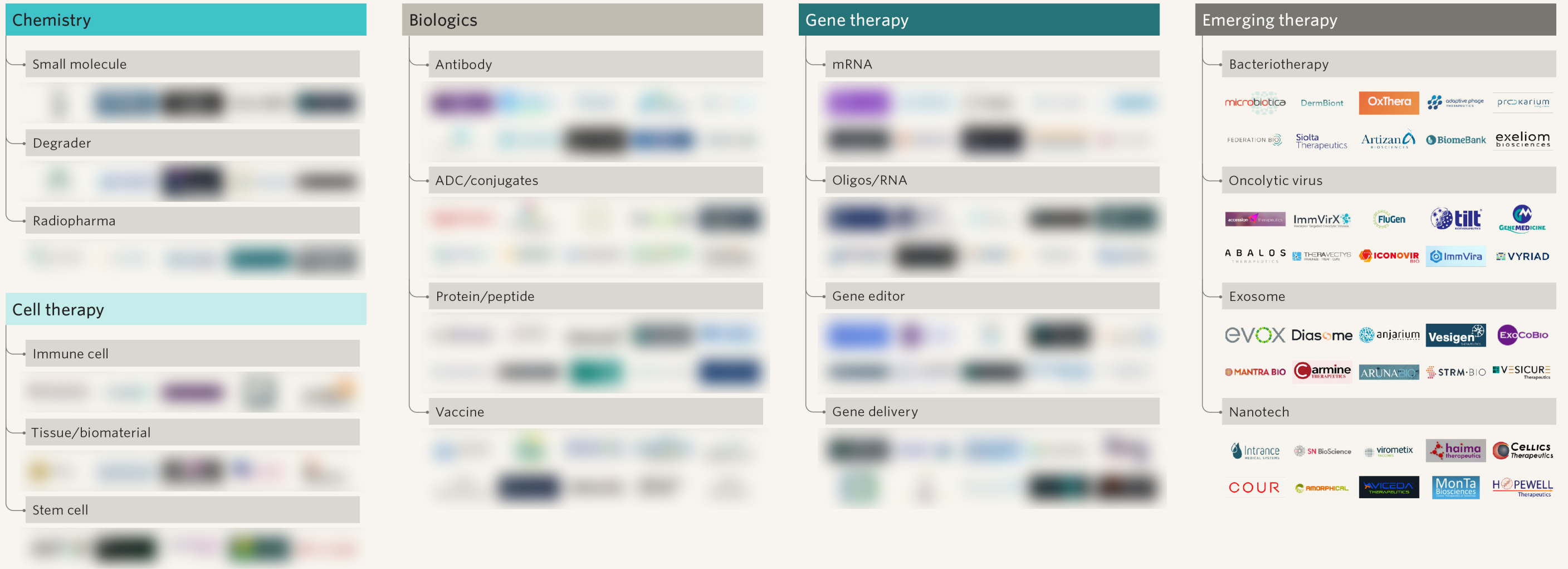




# Drug modality VC ecosystem market map

Click to view the interactive market map on the PitchBook Platform.

Market map is a representative overview of venture-backed or growth-stage providers in each segment. Companies listed have received venture capital or other notable private investments.



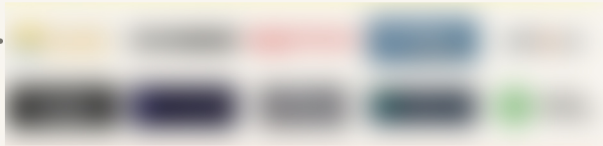


# Therapeutic area VC ecosystem market map

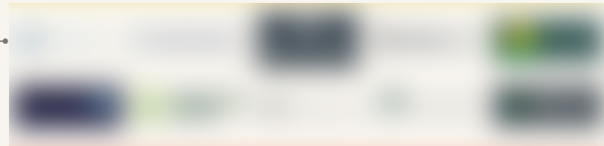
[Click to view the interactive market map on the PitchBook Platform.](#)

Market map is a representative overview of venture-backed or growth-stage providers in each segment. Companies listed have received venture capital or other notable private investments.

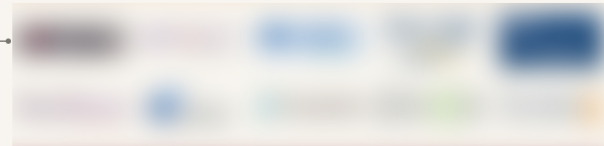
Oncology



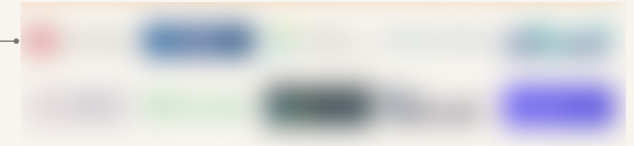
Neurology



Cardiovascular & metabolic disease



Immunology & infectious disease



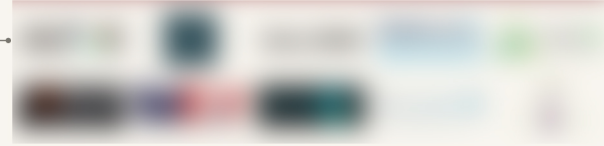
Digestive & renal system disorder



Systemic & structural disorder



Specialty disease



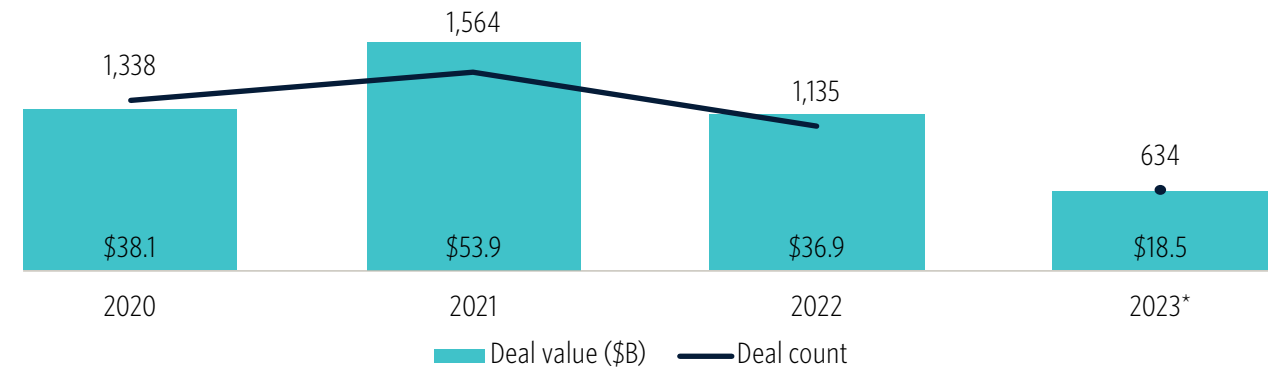


# VC activity

Venture capital dynamics in the biopharma industry present a nuanced narrative in 2023, with projections suggesting deals might exceed \$24 billion across roughly 840 transactions by year's end—a modest rise from the previous quarter. This uptick contrasts with the year's overall downward trend in dealmaking. It is starkly different from the high-water marks of 2020 through 2022, when annual values reached \$38.1 billion, \$53.9 billion, and \$36.9 billion, respectively. On the exit activity front, the number of acquisitions plummeted from the 2021 high of 200 deals totaling \$86.4 billion to the low of 77 deals totaling \$23.4 billion in 2022. Currently, 2023 is projected to have around 84 deals totaling \$17.9 billion. The greatest loss for exits was in the IPO market, with a 71% drop in deal count from 154 to 45, while acquisitions experienced a 28% decrease from 45 to 32 during the 2021-to-2022 market shift. The exit split by the end of 2023 does not differ greatly from 2022, with projections of 55 IPOs and 29 acquisitions. Overall, the current climate indicates a recalibration toward pre-pandemic investment norms, despite the sector's explosive growth amid COVID-19.

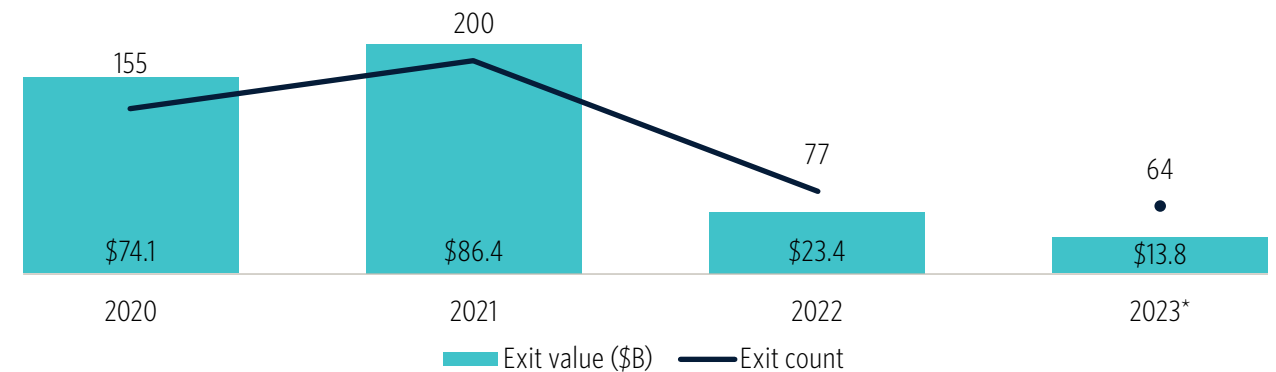
In the biopharma investment landscape, a strategic shift is evident, with a trend toward fewer but more significant deals, which is indicative of a prudent investment approach that prioritizes larger and potentially more stable investments. This could be attributed to various strategies such as reinforcing reserves for existing portfolios, optimizing the timing for IPOs, pursuing exit strategies to raise new funds, or adapting to an economic downturn impacting the availability of startup leadership. In this climate, strategic patience emerges as a key virtue for investors looking to fully capitalize on the prolific pandemic-era investments. Analyzing the investment distribution across clinical trial phases, there was a notable uptick in funding for companies initiating phase 1 trials from 2020 to 2021, with a subsequent dip in 2022 and a slight rebound in 2023. This fluctuation stems largely from the dynamic availability of capital and the appetite for risk, particularly for novel high-stakes modalities like gene and cell therapies. In contrast, investments in companies

## Biopharma VC deal activity



Source: PitchBook • Geography: Global • \*As of September 30, 2023

## Biopharma VC exit activity



Source: PitchBook • Geography: Global • \*As of September 30, 2023



# Chemistry

## Overview

The chemistry segment focuses on small-molecule drugs, which are a traditional yet dynamic component of the pharmaceutical industry. These drugs are low-molecular-weight compounds that can easily diffuse across cell membranes to exert their biological effects. Small-molecule drugs are the basis for many classic therapeutic drugs and remain vital due to their ease of administration, capacity for oral dosing, and generally straightforward manufacturing process.

The landscape of legacy incumbents in this domain includes virtually all prominent pharmaceutical entities such as [Pfizer](#), [AbbVie](#), [Merck](#), [Johnson & Johnson](#), [Novartis](#), [Bristol Myers Squibb](#), and [Roche](#). These companies have long held sway over the segment, leveraging extensive R&D resources and sophisticated infrastructures to lead small-molecule drug discovery and market entry.

Emerging from the wealth of new biology identified in academic settings, startups in the small-molecule space typically fall into one of two categories: One group focuses on advancing single assets or a portfolio of targeted assets stemming from novel biological discoveries. The other is characterized by its platform-based approach, aiming to establish a robust pipeline of drugs. These platforms often harness AI & ML for novel target identification, biomarker discovery, or the engineering of innovative molecules. A subset of these platforms pioneers new functions within small molecules, such as protein degraders or the therapeutic and diagnostic applications of radiopharmaceuticals.

## Subsegments

- **Small molecules:** These are the foundational inhibitors or activators of specific enzymes or receptors and constitute the majority of pharmaceuticals in the market.
- **Degraders:** Representing a novel class, these bifunctional molecules recruit the body's own protein degradation machinery to selectively dismantle pathogenic proteins. This category includes proteolysis targeting chimeras (PROTACs).
- **Radiopharma:** These are compounds that are conjugated with radioactive isotopes, serving dual roles in both targeted diagnostic imaging and as therapeutic agents for conditions like cancer.

## Industry drivers

- **New functions for small molecules:** Beyond traditional roles as enzyme or receptor inhibitors, small molecules are being engineered to perform complex biological functions. Companies like [Vividion Therapeutics](#) and [RayzeBio](#) are pioneering this shift. Vividon Therapeutics, which was acquired by [Bayer](#) for \$1.5 billion, was developing small molecules that can modulate protein degradation, signaling pathways, and gene expression. [RayzeBio](#), with a recent \$358 million IPO, is pushing the space of radiopharma forward with its targeted radioisotope technology. This expansion of capabilities is enabling the development of highly targeted therapies with the potential to address diseases that have been challenging to treat with conventional small-molecule drugs.





## CHEMISTRY

### Key chemistry VC deals over the past year\*

Company	Close date (2023)	Subsegment	Stage	Deal value (\$M)	Lead investor(s)	Valuation step-up
<a href="#">Cardurion Pharma</a>	July 12	Small molecule	Late-stage VC	\$300.0	N/A	1.5x
<a href="#">Genesis Therapeutics</a>	August 25	Small molecule	Early-stage VC	\$224.0	Andreessen Horowitz	1.4x
<a href="#">Nimbus Therapeutics</a>	August 7	Small molecule	Late-stage VC	\$210.0	Atlas Venture, GV, SR One Capital Management	N/A
<a href="#">Avenzo Therapeutics</a>	May 26	Small molecule	Early-stage VC	\$196.5	N/A	N/A
<a href="#">Avalyn Pharma</a>	September 27	Small molecule	Late-stage VC	\$189.2	Eventide Asset Management, Perceptive Advisors, SR One Capital Management	N/A
<a href="#">Mariana Oncology</a>	August 25	Radiopharma	Early-stage VC	\$173.9	Deep Track Capital, Forbion	1.4x
<a href="#">ArriVent Biopharma</a>	March 17	Small molecule	Early-stage VC	\$155.0	General Catalyst, Sofinnova Investments	1.1x
<a href="#">Sinotau</a>	July 3	Small molecule, antibody	Late-stage VC	\$153.4	N/A	N/A
<a href="#">Pathalys Pharma</a>	January 13	Small molecule	Early-stage VC	\$150.0	Abingworth	N/A
<a href="#">Alkeus Pharmaceuticals</a>	June 5	Small molecule	Late-stage VC	\$150.0	Bain Capital Life Sciences	N/A

Source: PitchBook • Geography: Global • \*As of September 30, 2023



## CHEMISTRY

### Key chemistry VC exits over the past year\*

Company	Close date (2023)	Subsegment	Exit value (\$M)	Exit type	Acquirer(s)/index	Post-money valuation (\$M)
<a href="#">Neumora</a>	September 15	Small molecule	\$2,333.1	Public listing	NASDAQ: NMRA	\$2,583.1
<a href="#">Inversago Pharma</a>	August 10	Small molecule	\$1,075.0	Acquisition	Novo Nordisk	\$1,075.0
<a href="#">Adlai Nortye</a>	September 29	Small molecule, antibody, oncolytic virus	\$860.0	Public listing	NASDAQ: ANL	\$922.5
<a href="#">Laekna Therapeutics</a>	June 16	Small molecule	\$517.1	Public listing	02105.HK	\$618.0
<a href="#">Mineralys</a>	February 9	Small molecule	\$432.9	Public listing	NASDAQ: MLYS	\$624.9
<a href="#">Structure Therapeutics</a>	February 4	Small molecule	\$413.7	Public listing	NASDAQ: GPCR	\$599.0
<a href="#">Sagimet Biosciences</a>	July 14	Small molecule	\$269.8	Public listing	NASDAQ: SGMT	\$354.8
<a href="#">XinThera</a>	May 9	Small molecule	\$200.0	Acquisition	Gilead Sciences	\$200.0
<a href="#">MIRA Pharmaceuticals</a>	August 3	Small molecule	\$94.3	Public listing	NASDAQ: MIRA	\$103.2
<a href="#">Flame Biosciences</a>	January 17	Small molecule	\$79.0	Acquisition	Leap Therapeutics	\$79.0

Source: PitchBook • Geography: Global • \*As of September 30, 2023

# About PitchBook Industry and Technology Research

## Independent, objective, and timely market intel

As the private markets continue to grow in complexity and competition, it's essential for investors to understand the industries, sectors and companies driving the asset class.

Our Industry and Technology Research provides detailed analysis of nascent tech sectors so you can better navigate the changing markets you operate in—and pursue new opportunities with confidence.

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