

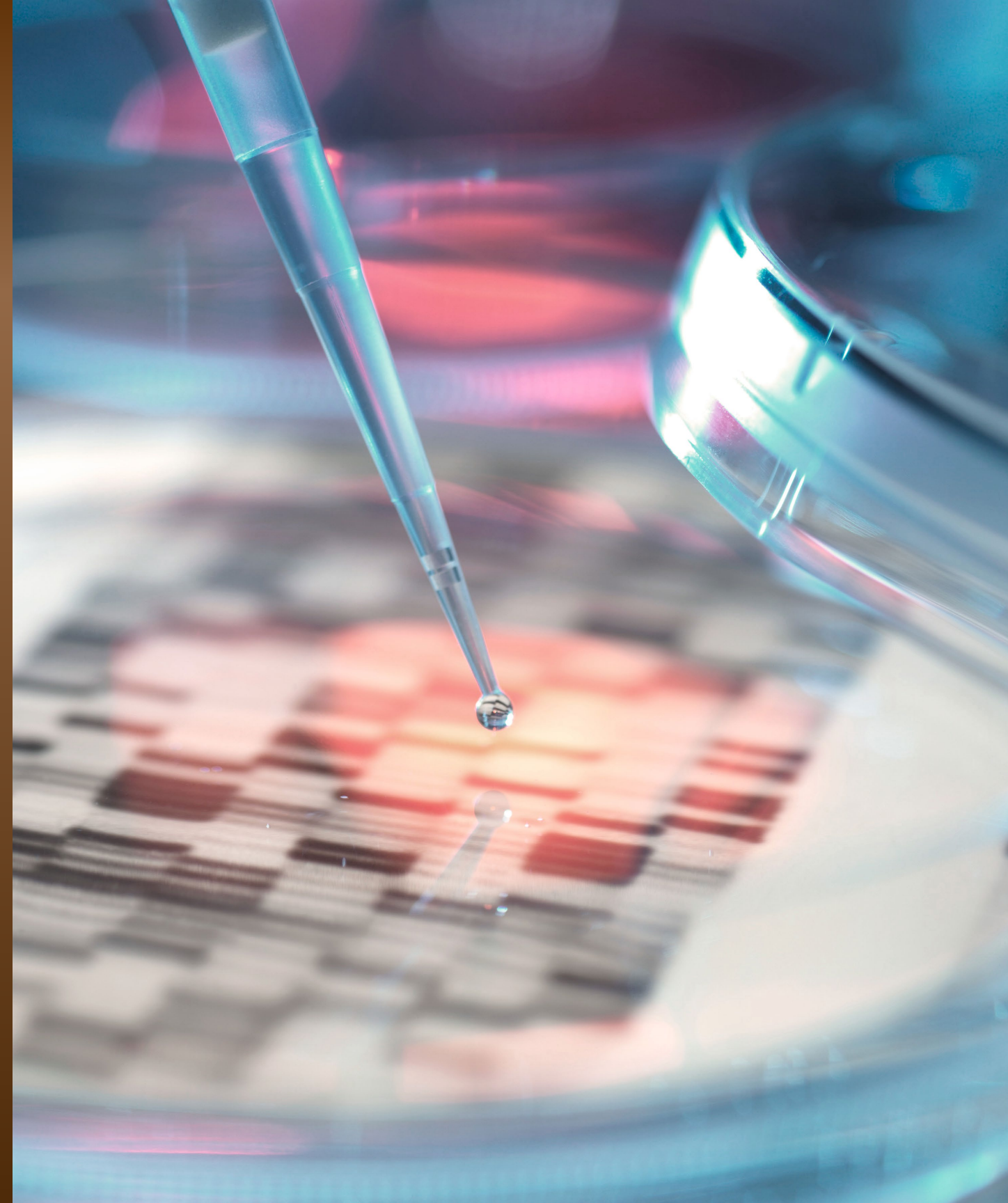
J.P.Morgan

Q2 2024 U.S. Biopharma Licensing and Venture Report

July 2024

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Executive summary

Biopharma venture investments through the first half of 2024 are signaling a return to annual growth alongside an increasingly reliable exit environment

Biopharma deal and funding activity completed the first half of 2024 with growth signals across both quarterly and annualized metrics. Venture investments returned with high-dollar rounds in Q2 to pour funds into biopharma and platform research, regardless of the company's clinical status. M&A activity maintained its healthy pace as the IPO market continued to open incrementally wider.

Licensing deals continued to see a larger portion of deal value shifting to milestones in order to de-risk partnership economics for buyers. Upfront payments make only 6% of total announced deal values across the board on an otherwise deal value—a notable big pharma-friendly trend since 2020.

Here are a few highlights from our Q2 2024 report:

- **Venture investment in therapeutics:** \$7.6 billion across 107 biopharma venture rounds in Q2 2024. This followed \$6.5 billion in 107 rounds in Q1 2024 to beat both respective quarters in 2023.
- **Biopharma licensing partnerships:** \$76.3 billion in licensing total deal values were announced in H1 2024 to-date with 6% of that in upfront payments.
- **M&A:** Biopharma M&A saw 26 acquisitions in Q2 2024 totaling over \$17.9 billion for an increasing share of small-cap biopharma companies.
- **IPOs:** \$1.9 billion across 10 biopharma IPOs completed on NASDAQ and NYSE in H1 2024 with 3 of these in Q2.

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Thank you for taking the time to read this report. We look forward to supporting you.

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Parameters

Biopharma companies are defined as firms developing therapeutics and technology platforms engaged in drug discovery, clinical R&D and commercialization.

Medtech companies are defined as firms developing medical devices, diagnostics, therapeutic digital health and commercial research tools. Healthcare IT and payer/provider software are excluded.

Therapy areas, development stages, modalities and deal structures are segmented per the DealForma database.

Financials are based on disclosed figures curated by DealForma. Multiple tranches of the same Series are counted as one together.

Data as of 6/30/2024

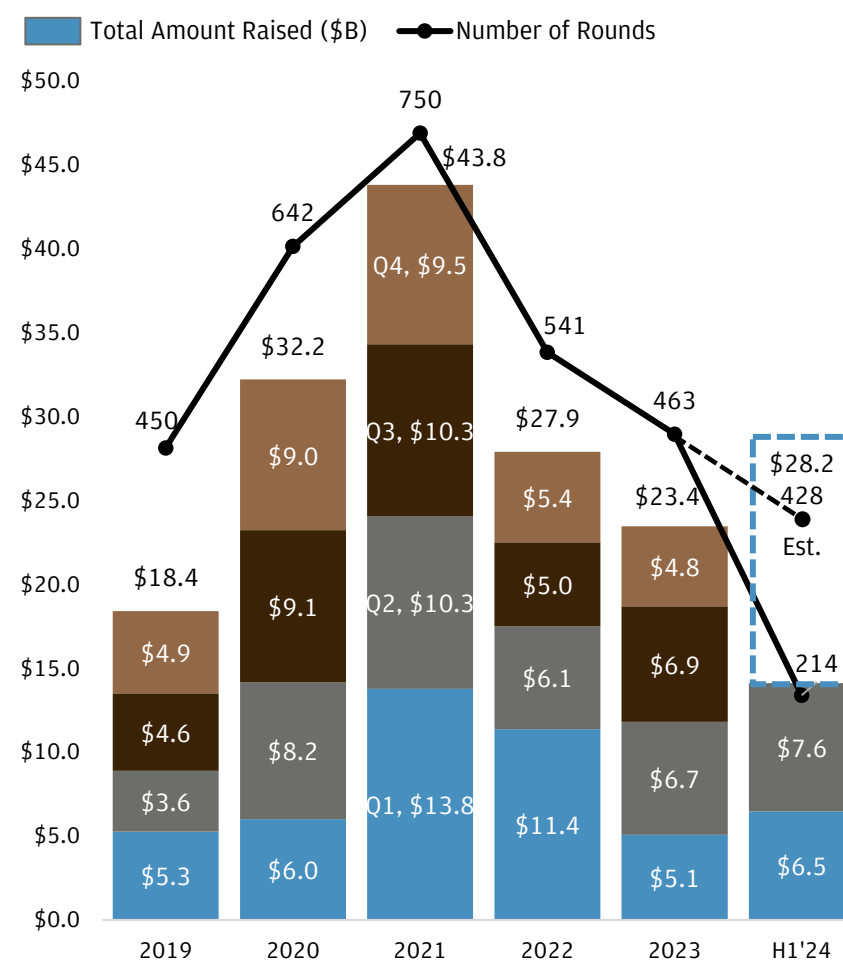
Biopharma venture investment dollars increased again in the second quarter

Venture investments into biopharma therapeutics and discovery platform companies rose quarter-over-quarter in Q2 2024. This was on fewer rounds, however, as larger investments went into fewer companies. Venture investment concentrated on the most promising therapeutic areas and de-risked later-stage programs.

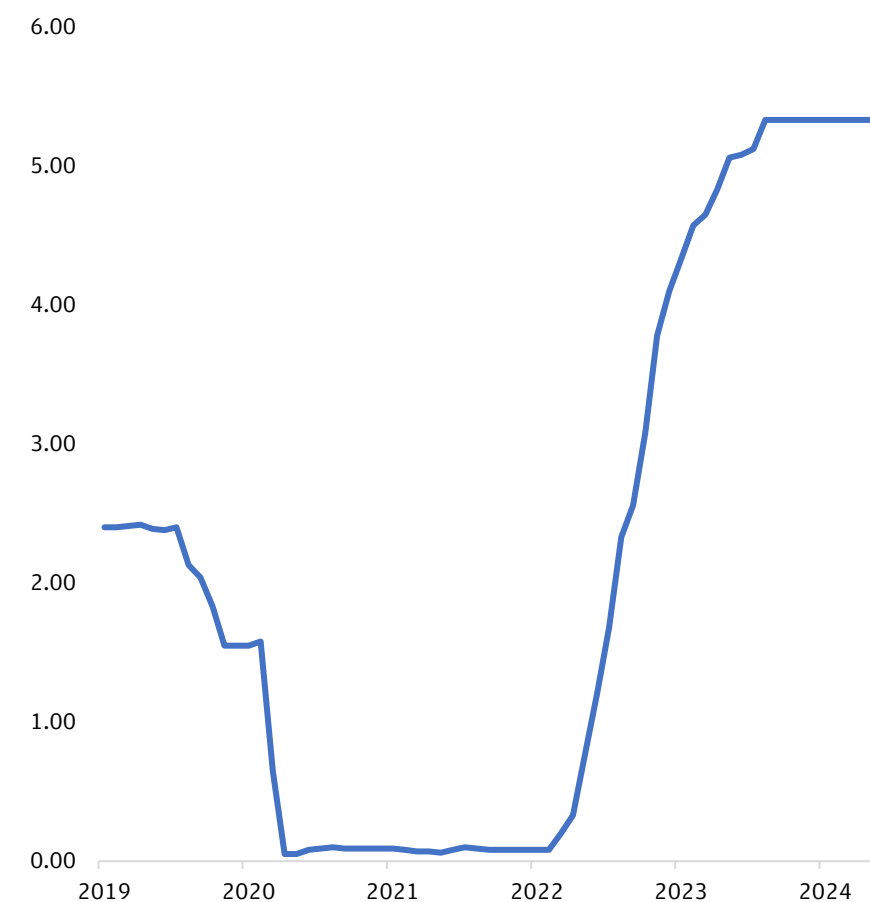
- \$7.6 billion was raised in private funding rounds in the second quarter of 2024 across 107 investments. Q1 and Q2 each beat respective previous quarters in dollar value.
- Venture dollar volume through the first half of 2024 is signaling an estimated \$28.2 billion for the full year to break a two-year down-trend.
- At the peak in 2021, biopharma saw \$43.8 billion across 750 venture rounds.
- Interest rates have plateaued, and JPM economists now expect to see the first rate cut in September 2024 (as opposed to November previously). Rates have correlated with deal activity in the past, so we may see biopharma deal and funding activity increase through the second half of 2024.

Biopharma Therapeutics and Discovery Platforms Deal Activity vs. Federal Funds Rate

Total Deal Activity (\$B)



Federal Funds Effective Rate



Source: DealForma.com database; Fed rate: fred.stlouisfed.org
Financials based on disclosed figures. Data through 6/30/2024.

Despite downward deal count trend, mega rounds are still prevalent in 2024

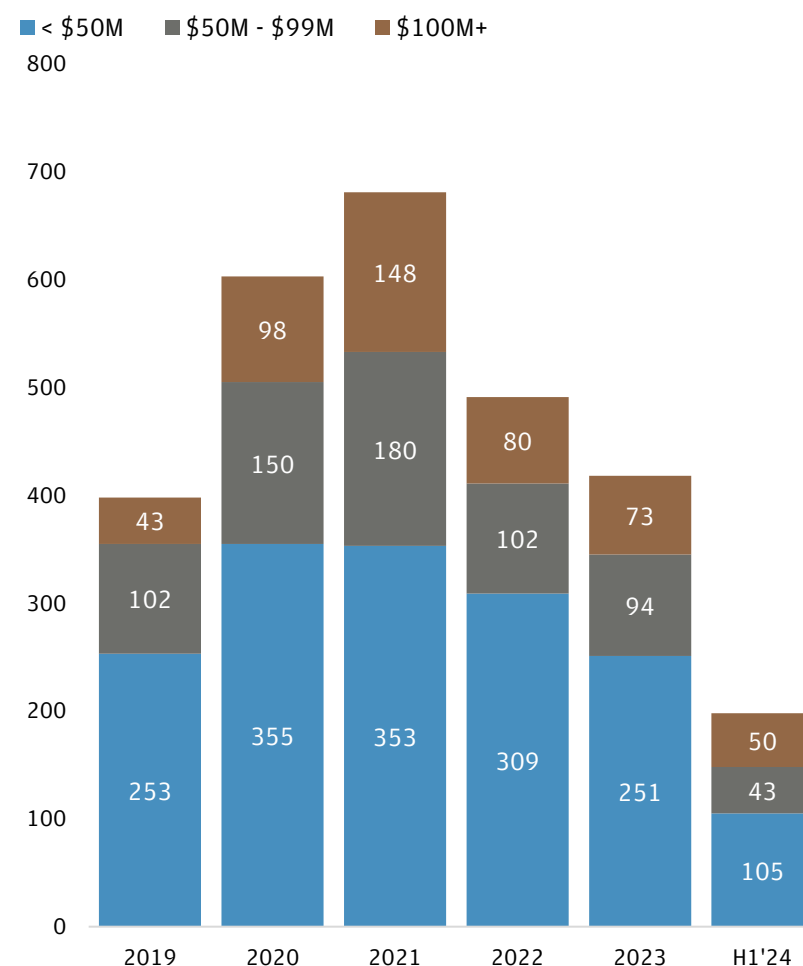
The most promising and clinically successful pipeline programs continue to attract the highest value, but there are fewer of them.

- Since 2021, the number of venture deals has declined YoY (assuming H1'24 repeats its volume for the rest of the year).
- 50 biopharma companies raised venture rounds of \$100 million or more in the first half of 2024.
- 14 licensing deals in the first half of 2024 saw \$100 million or more in disclosed upfront payment terms.
- Notable Q2 2024 biopharma venture rounds over \$100 million include Xaira Therapeutics' \$1 billion in committed capital announced in April, Formation Bio's \$372 million Series D in June, and AltruBio's \$225 million Series B in May 2024.
- The largest disclosed licensing upfront cash and equity terms in Q2 2024 include Novavax/Sanofi with \$500 million signed for platforms programs, PeptiDream/Novartis with \$180 million for a peptide-drug conjugate program, and Arvinas/Novartis with \$150 million signed at Phase II.

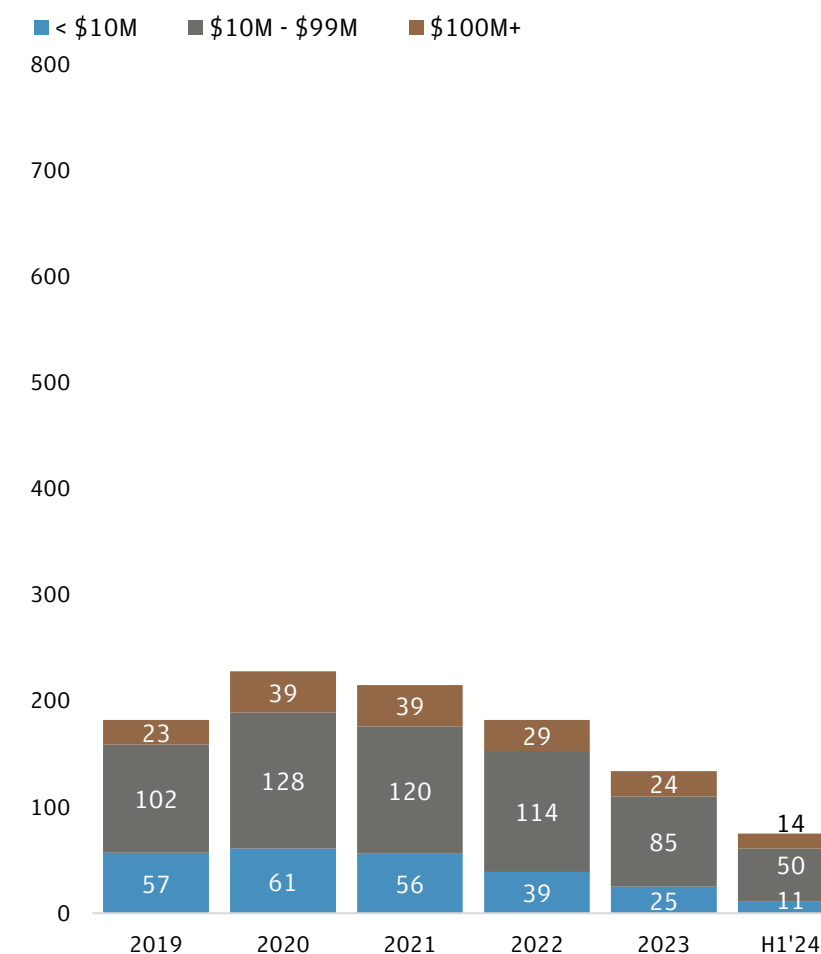
Source: DealForma.com database
Financials based on disclosed figures. Data through 6/30/2024.

Biopharma: Total Number of Venture Rounds and R&D Partnership & License Deals by Value Upfront

Number of Venture Investments by Round Size



Number of R&D Licenses by Upfront Size

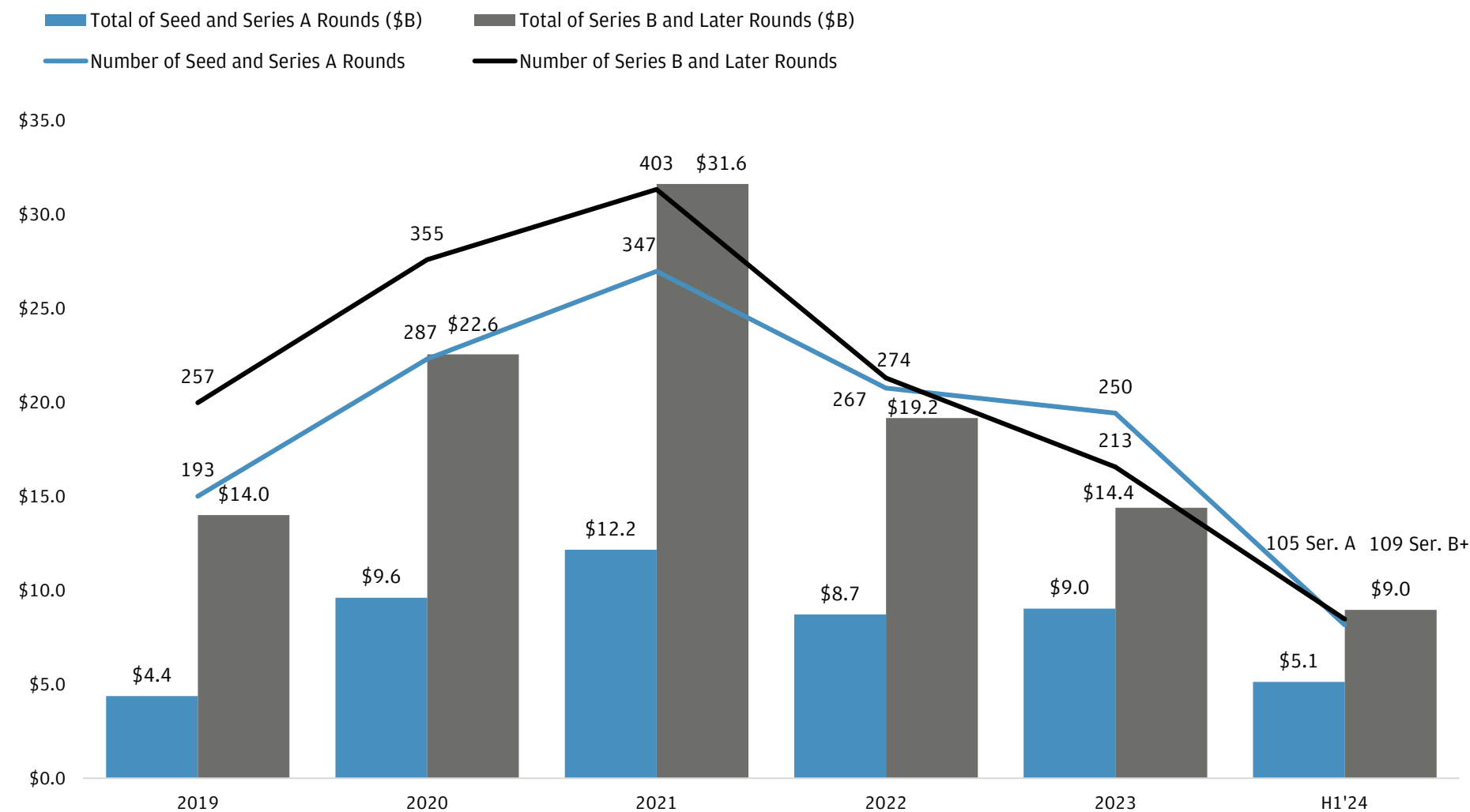


Seed and Series A investment dollars continued trend toward modest growth

Seed and Series A funding into biopharma companies totaled \$5.1 billion across 105 rounds in the first half of 2024. A majority of that came in the second quarter through larger initial investment rounds.

- The largest biopharma seed and Series A rounds in Q2 2024 include Xaira Therapeutics' \$1 billion in committed capital and Diagonal Therapeutics' \$128 million, both announced in April. Reunion Neuroscience also had a notable financing with a \$103 million Series A in May 2024.
- There was an even split between first-time and later-stage financings as new company creation continued.

Seed and Series A vs. Later Series Venture Totals in Biopharma Therapeutics and Discovery Platforms



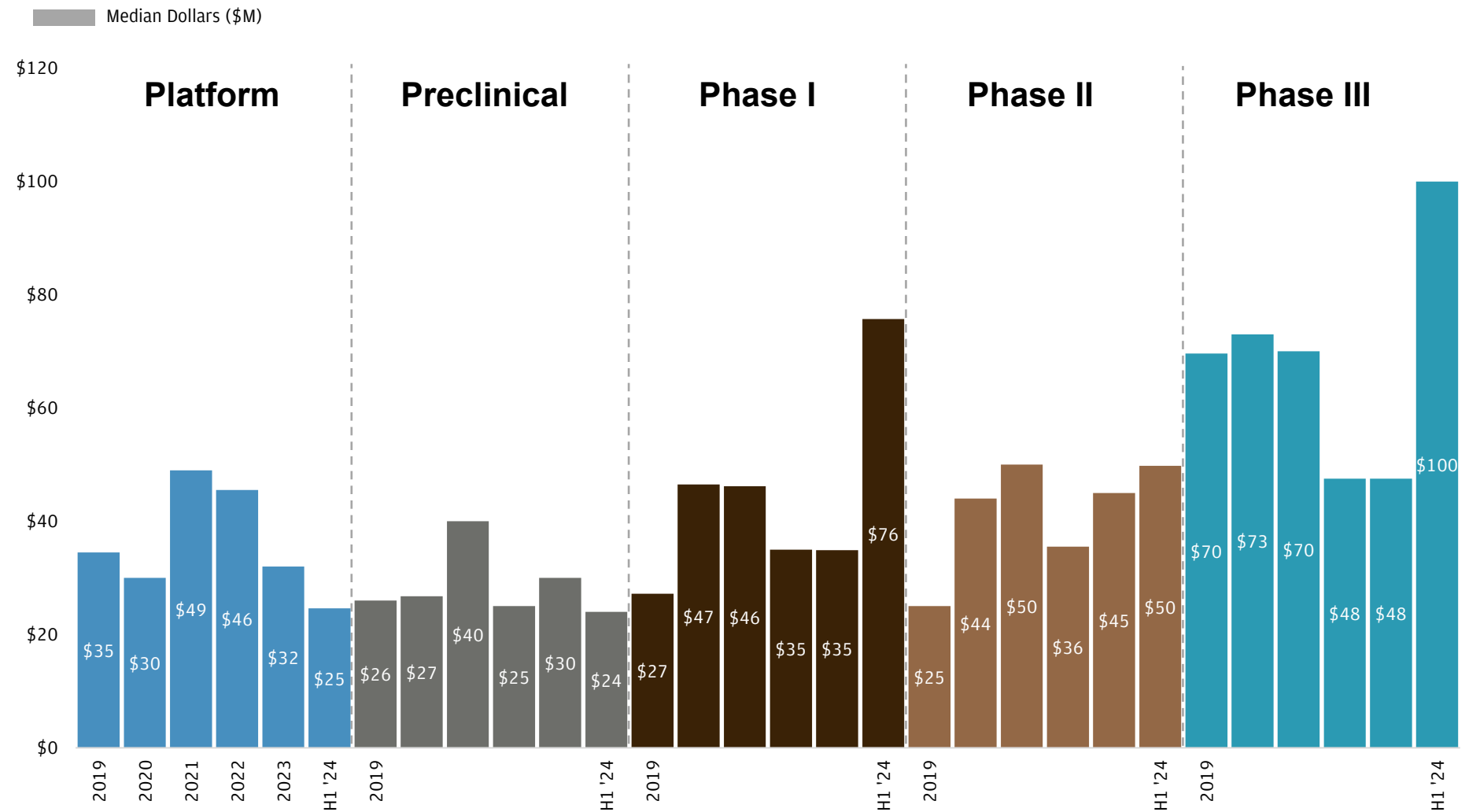
Source: DealForma.com database
Financials based on disclosed figures. Data through 6/30/2024.

Venture round medians increased for clinical stage biopharma programs

In the first half of 2024, biopharma companies with their lead programs in Phase I through Phase III saw higher median investment rounds than companies in other stages. The median round for Phase III companies increased to \$100 million. Platform and preclinical companies saw smaller investment rounds compared to previous years.

- Phase I biopharma companies raised a median round of \$76 million in 2024 through Q2, more than double the figure from 2023.
- 40 companies disclosed Phase I funding rounds in H1 2024 ranging from \$2 million to \$260 million (Apollo Therapeutics Series C). There were 16 rounds at \$100 million or more.
- Phase III biopharma companies saw \$100 million in venture round medians through Q2 2024, more than double the full-year 2023 median.
- 7 companies disclosed Phase III funding rounds in H1 2024 ranging from \$11 million to \$372 million (Formation Bio Series D)

Biopharma Therapeutics and Platforms: Median Venture Rounds by Company Stage at Funding



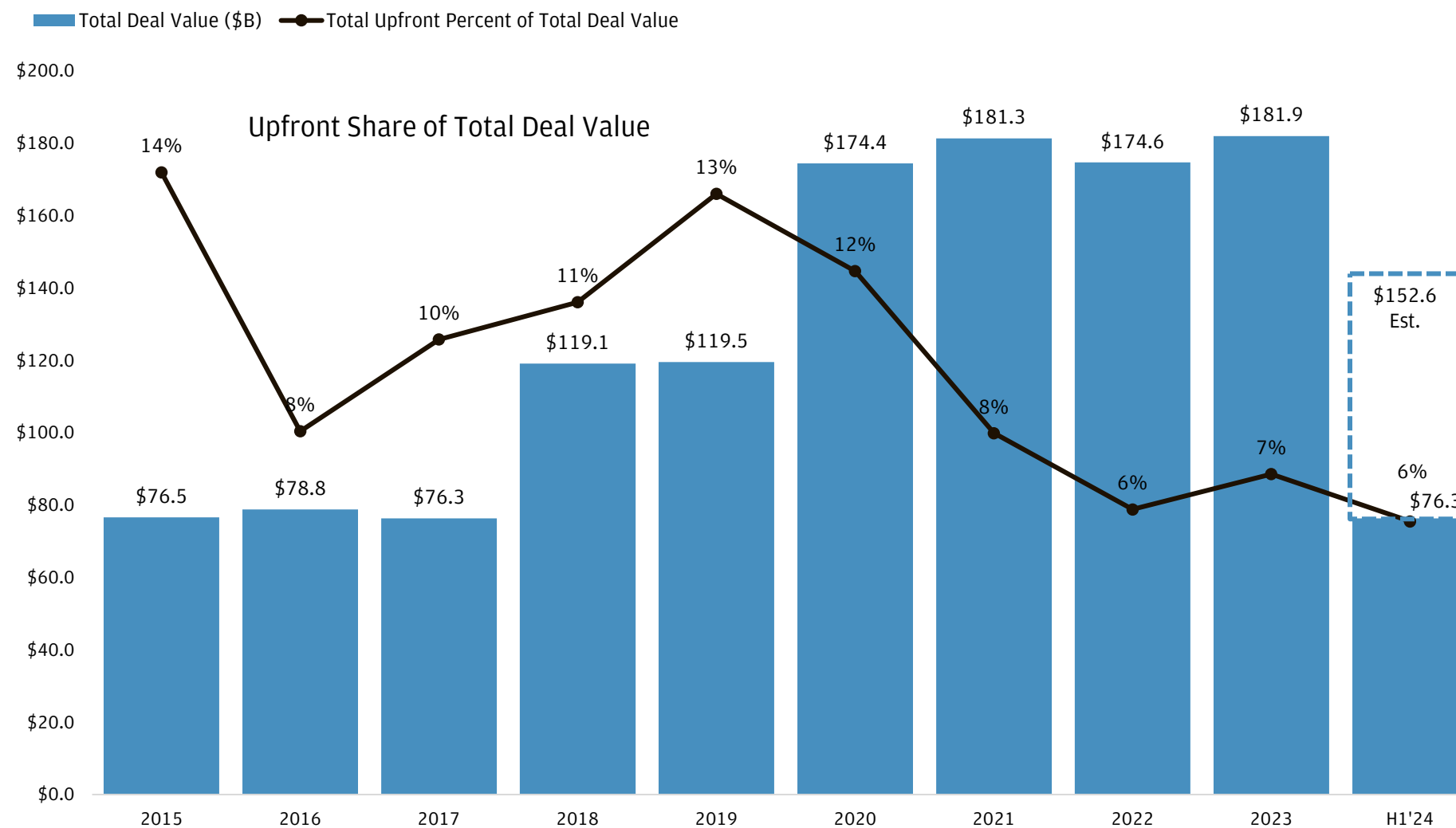
Source: DealForma.com database
Financials based on disclosed figures. Data through 6/30/2024.

Licensing deal upfront payments represent only 6% of total announced deal values

Despite biopharma licensing and partnership total announced deal values holding steady while deal activity dropped since 2020, the share of upfront payments declined significantly. A larger share of deal value has been pushed to milestones as in-licensing partners mitigate deal economic risk.

- 6% of the \$76.3 billion in biopharma licensing total announced deal value in the first half of 2024 was in upfront payments, down from the 2019 peak of 13%.
- Milestones have been making up a growing share of announced deal totals, with the largest portion often coming from sales-based milestones across multiple potential programs.

Biopharma Therapeutics and Platforms: R&D Licensing Totals (\$B) and Percentage Upfront



Source: DealForma.com database
Financials based on disclosed figures. Data through 6/30/2024.

Biologics and small molecules lead early-stage investment and licensing deal values

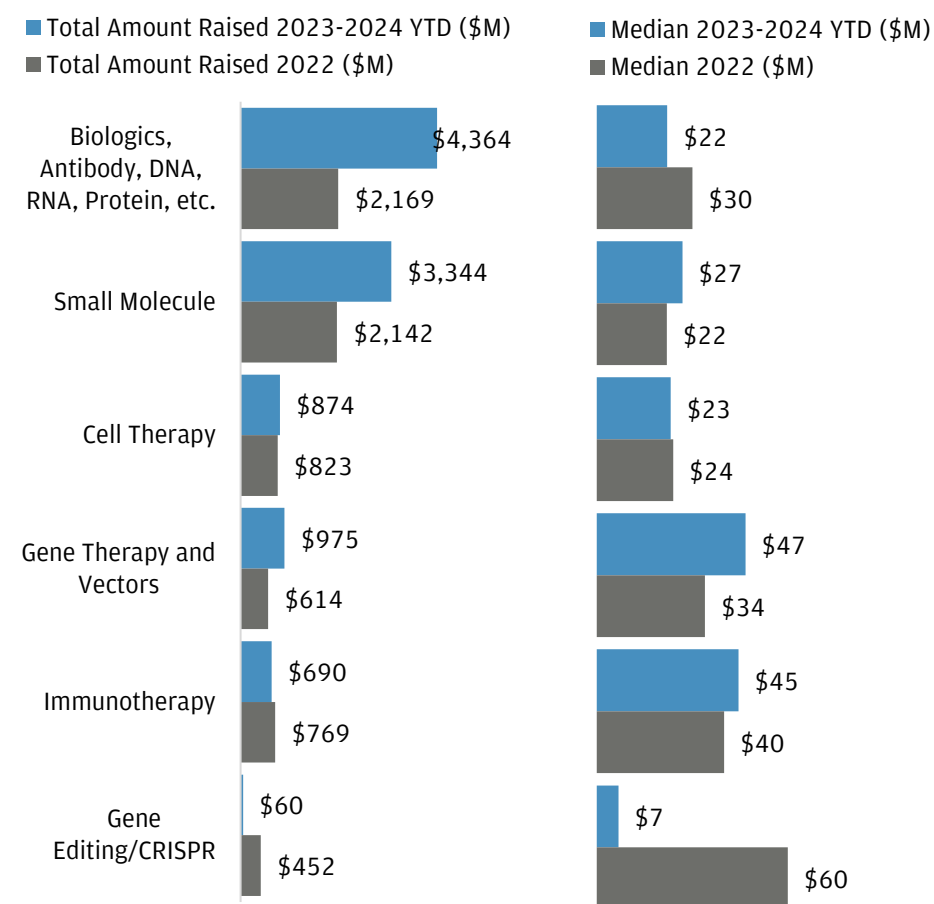
The top biopharma modalities for investment and licensing deal flow continue to be biologics and small molecules, followed by more advanced modalities. Both venture investments at seed to Series A and licensing upfront payments tracked higher from 2023 to H1 2024 in the top two modalities.

- \$4.4 billion in seed and Series A investments were made into biologics from 2023 to H1 2024 with a median round size of \$22 million.
- \$122.8 billion in total announced deal value for biologics from 2023 to H1 2024 with a median upfront payment of \$45 million.

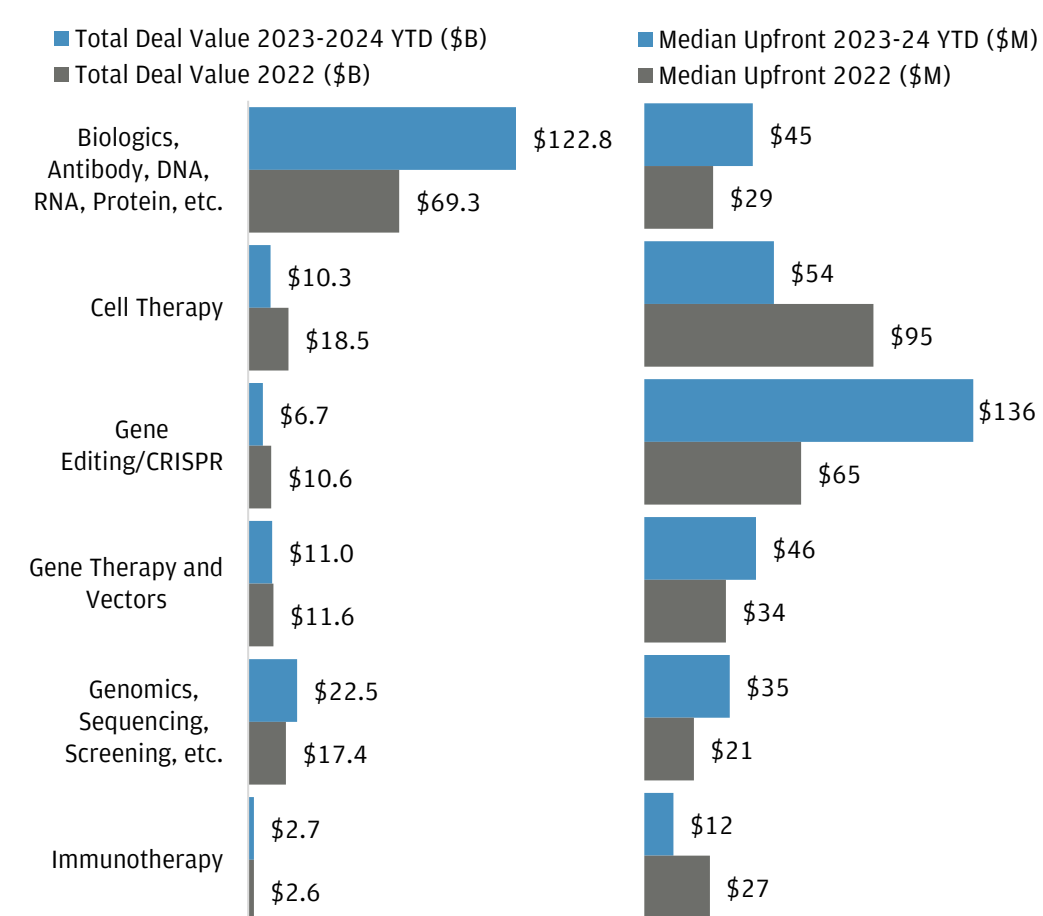
Source: DealForma.com database
Financials based on disclosed figures. Data through 6/30/2024.

Top Biopharma Modalities: Seed and Series A Venture Rounds and Total Announced Licensing Deal Value

**Top Modalities
Seed-Series A (\$M)**



**Top Modalities
Total Licensing Deal Values (\$B)**

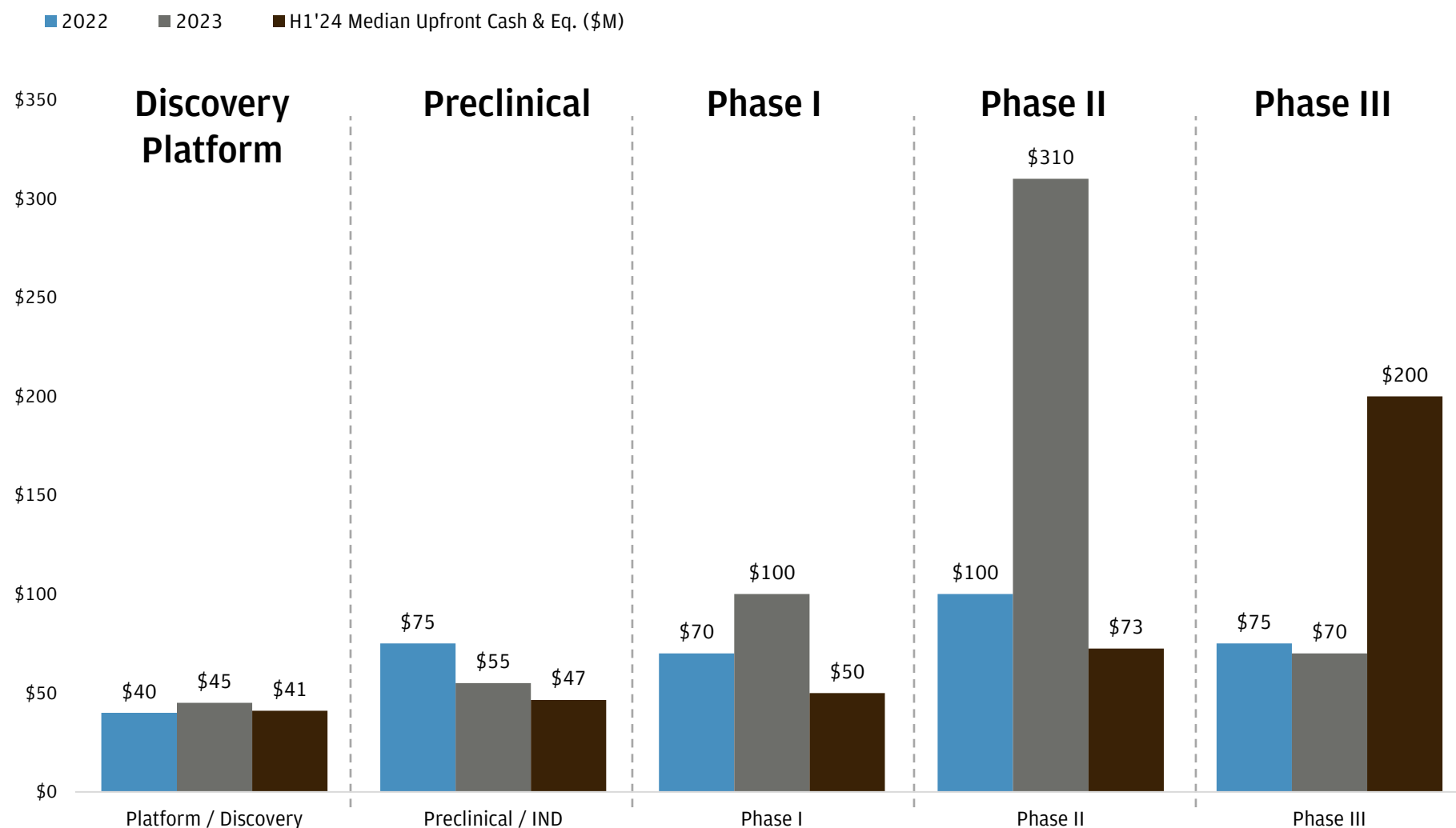


Big pharma in-licensing has pushed more value to Phase III programs closer to approval

Large-cap biopharma (market cap of \$50 billion+) are focused on in-licensing later-stage clinical compounds to fill pipelines with therapies close to approval. The shift to later-stage clinical programs left Phase II and earlier-stage companies with smaller median licensing upfront payments in H1 2024.

- Median upfront cash and equity payments from big pharma were down for Phase II and earlier-stage deals signed in H1 2024 to \$73 million for Phase II, \$50 million for Phase I, \$47 million for preclinical/IND, and \$41 million for discovery platform programs.
- 30 Phase III deals were signed in H1 2024 with the largest disclosed upfronts including Idorsia/Viatris (\$350 million) and Protagonist/Takeda (\$300 million).
- The largest Phase III licensing deal upfront in Q2 2024 was in the Ascentage Pharma/Takeda deal with \$100 million upfront plus an undisclosed minority equity investment.
- Daiichi Sankyo/Merck saw the largest Phase II upfront licensing payment at \$4 billion in 2023.

In-Licensing by Big Pharma: Median Upfront Cash & Equity by Stage at Signing. 2022 to H1'24



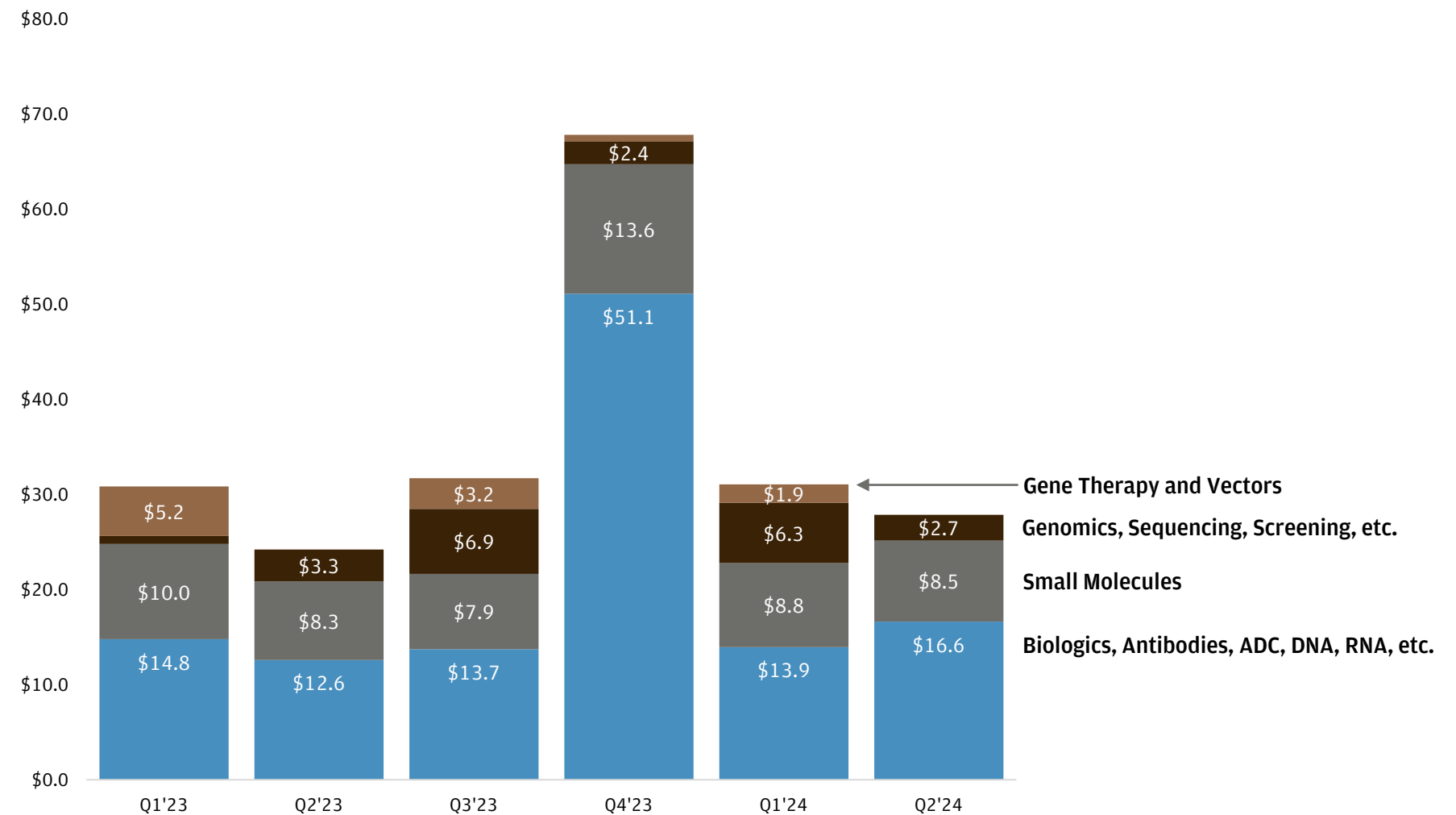
Source: DealForma.com database
Financials based on disclosed figures. Stage of lead asset in multi-asset deals. Data through 6/30/2024.

Antibody therapies drove biologics deal values higher; fewer gene therapy deals in Q2 2024

Antibody-based therapies and ADCs continued to see larger deal totals in the first half of 2024 to drive total announced partnership deal values higher. Cell and gene therapy deals declined in aggregate value as in-licensees de-risked advanced therapies for longer-established modalities.

- Biologics licensing deal values rose from \$13.9 billion in Q1 2024 to \$16.6 billion in Q2 2024. Antibody and ADC deals led with new deal upfronts and potential payment totals.
- \$75 billion in total announced deal value for biopharma licensing deals signed in the first half of 2024.
- The Daiichi Sankyo/Merck deal announced in October 2023 for a Phase II ADC program has a total deal value of up to \$22 billion with \$4 billion of that upfront, driving the outlier performance.

R&D Partnerships for Top Biopharma Modalities: Total Announced Deal Value (\$B)



Source: DealForma.com database
Financials based on disclosed figures. Data through 6/30/2024.

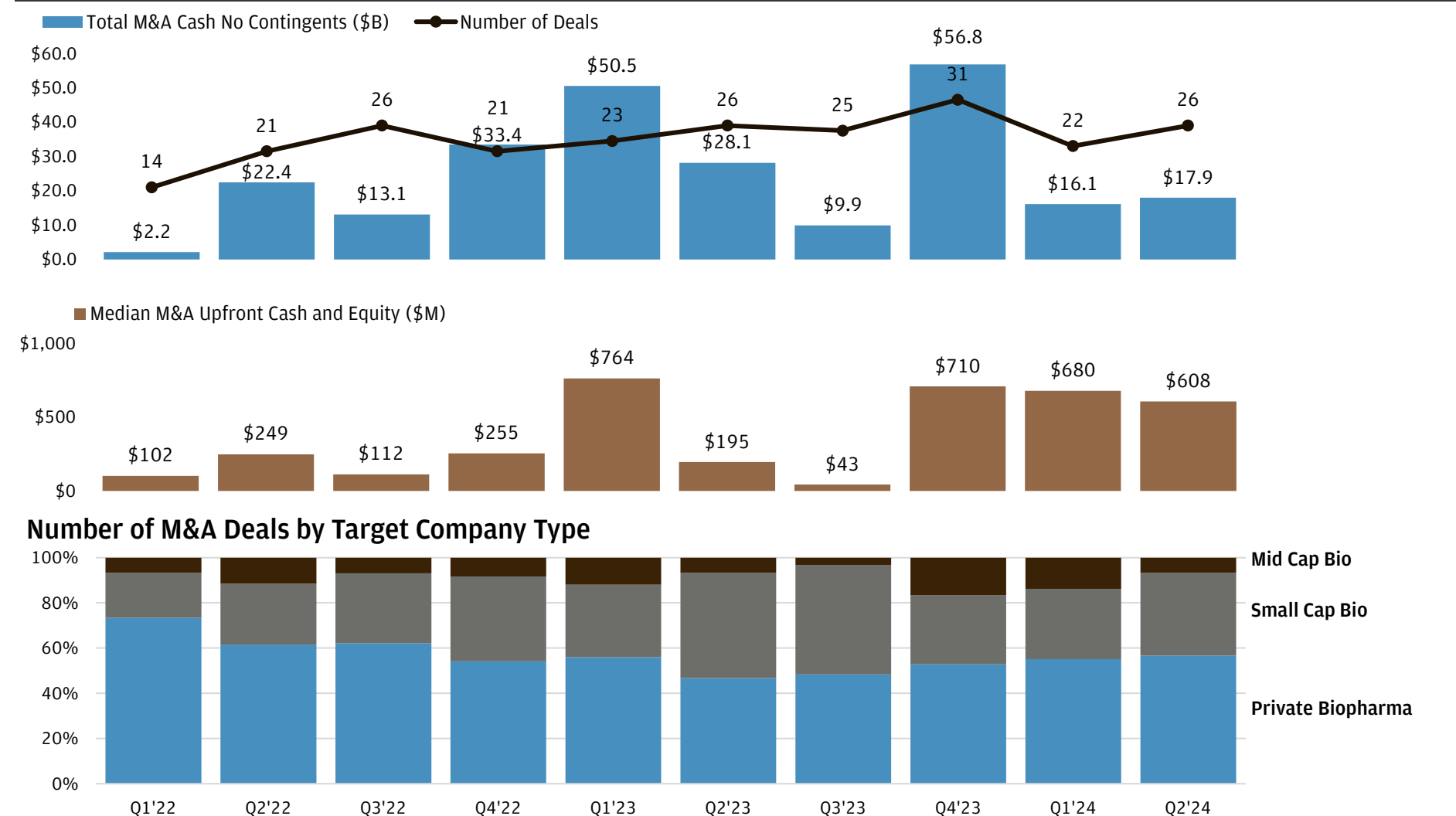
Biopharma acquisition activity picked up in Q2 2024

More biopharma companies were acquired in Q2 2024 to return to top Q1 numbers and reach for the recent Q4 2023 quarterly peak in activity. Dollar volume remains soft, however. The market is on track to complete about 100 M&A transactions for 2024.

- 26 M&A transactions for biopharma therapeutics and platform companies were announced in Q2 2024 totaling \$17.9 billion.
- The share of private biopharma acquisition activity increased slightly over small and mid-cap biopharma deals to account for close to 60% of all biopharma M&A.
- Median biopharma M&A in H1 2024 was \$608 million. This is down from \$680 million from full-year 2023, though a slightly larger share are now acquisitions of private biopharma.
- Notable clinical stage acquisitions include Vertex/Alpine Immune Sciences for \$4.9 billion and Merck/Eyebiotec for \$1.3 billion.

Source: DealForma.com database
Financials based on disclosed figures. Data through 6/30/2024.

Biopharma M&A: Number of Deals, Total Deal Value (\$B), and Median M&A Upfront Cash and Equity (\$M)

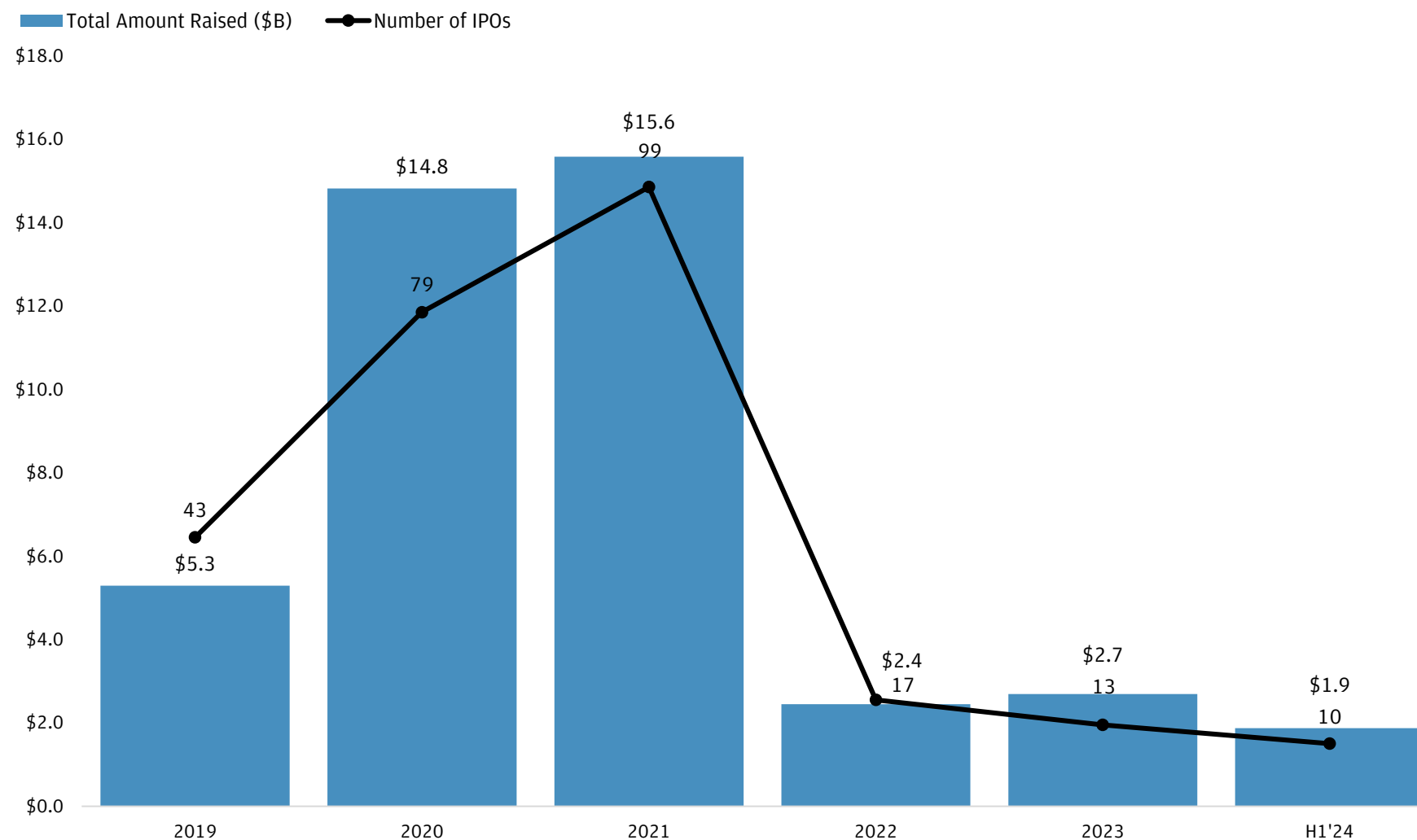


First-half 2024 biopharma IPO activity signals a positive return after a soft two years

The first half of 2024 saw 10 biopharma IPOs complete on U.S. exchanges showing an early signal to a busy IPO year. Seven of these were in Q1 2024.

- \$1.9 billion across 10 biopharma IPOs on NASDAQ and NYSE all completed in H1 2024.
- 9 of the 10 companies had clinical programs at IPO.
- The largest 2024 IPOs through June include CG Oncology (\$437 million), Kyverna Therapeutics (\$367 million), and Alumis (\$210 million).

NASDAQ and NYSE Completed IPOs in Biopharma Therapeutics and Platforms: Totals (\$B) and Count



Source: DealForma.com database

Financials based on disclosed figures. IPOs over \$15 million. Excludes Kenvue, Inc. (Q2 2023, \$4.4B) and other OTC focused companies. IPOs by completion date. Data through 6/30/2024.

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