

J.P.Morgan

Biopharma Therapeutics Licensing and Venture Deals

November 2022

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Executive summary

Biopharma deal and funding activity continued to track lower in the third quarter

Biopharma R&D partnerships, venture funding and overall dealmaking was lower in Q3 2022 than in Q1 and Q2. Licensing and venture totals are back to pre-2019 levels.

Here are a few highlights from our third-quarter report:

- **Biopharma licensing partnerships:** \$2 billion upfront and \$34 billion in total announced deal values across 119 biopharma partnerships. Median upfront cash and equity held steady despite fewer deals going into the total figures. Biopharma companies out-licensed more advanced programs—and for wider licensing territories.
- **Biopharma venture investment:** \$3.3 billion was invested into biopharma therapeutics and platform companies in Q3 2022 for a total of \$9.2 billion when including medtech, tools and services. This total was lower compared to earlier quarters, though biopharma trends are holding up better than other sub-sectors.
- **Cell and gene therapies:** Licensing and venture investments continued to support advanced therapies to a greater extent. Median upfronts came in at \$132 million and venture rounds came in at \$67 million in what was a healthy segment of biopharma dealmaking.
- **IPO and M&A activity:** IPO and M&A activity remained muted during the quarter. Biopharma IPOs saw a slight uptick in new filings for companies with more advanced pipelines.

What does this mean for the rest of 2022?

- **The search for capital continues** as companies burn through cash balances, increasing discussions on possible strategic alternatives.
- **Potential for a continued push to out-license core programs** as buyers demand quality and larger commercial territories to support larger deal values.
- **Later series venture rounds and PIPEs** will fill the gap from IPO and M&A exits slowing down. There is still a healthy amount of dry powder to invest.

At J.P. Morgan, we have a team of relationship bankers and specialists dedicated to the life sciences and healthcare sectors. We believe deeply in the pivotal contributions these entrepreneurs add to society, shareholders and employees alike.

Regardless of the size or stage of your company, we're committed to your success. We're prepared and equipped to help you meet your strategic, financial and technical objectives.

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

Sincerely,
Kathryn McDonough
Co-head of Healthcare, Commercial Banking
J.P. Morgan

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, digital health therapeutics and research tools. Therapy areas, development stages and modalities 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 Oct. 3, 2022

Biopharma dealmaking in perspective

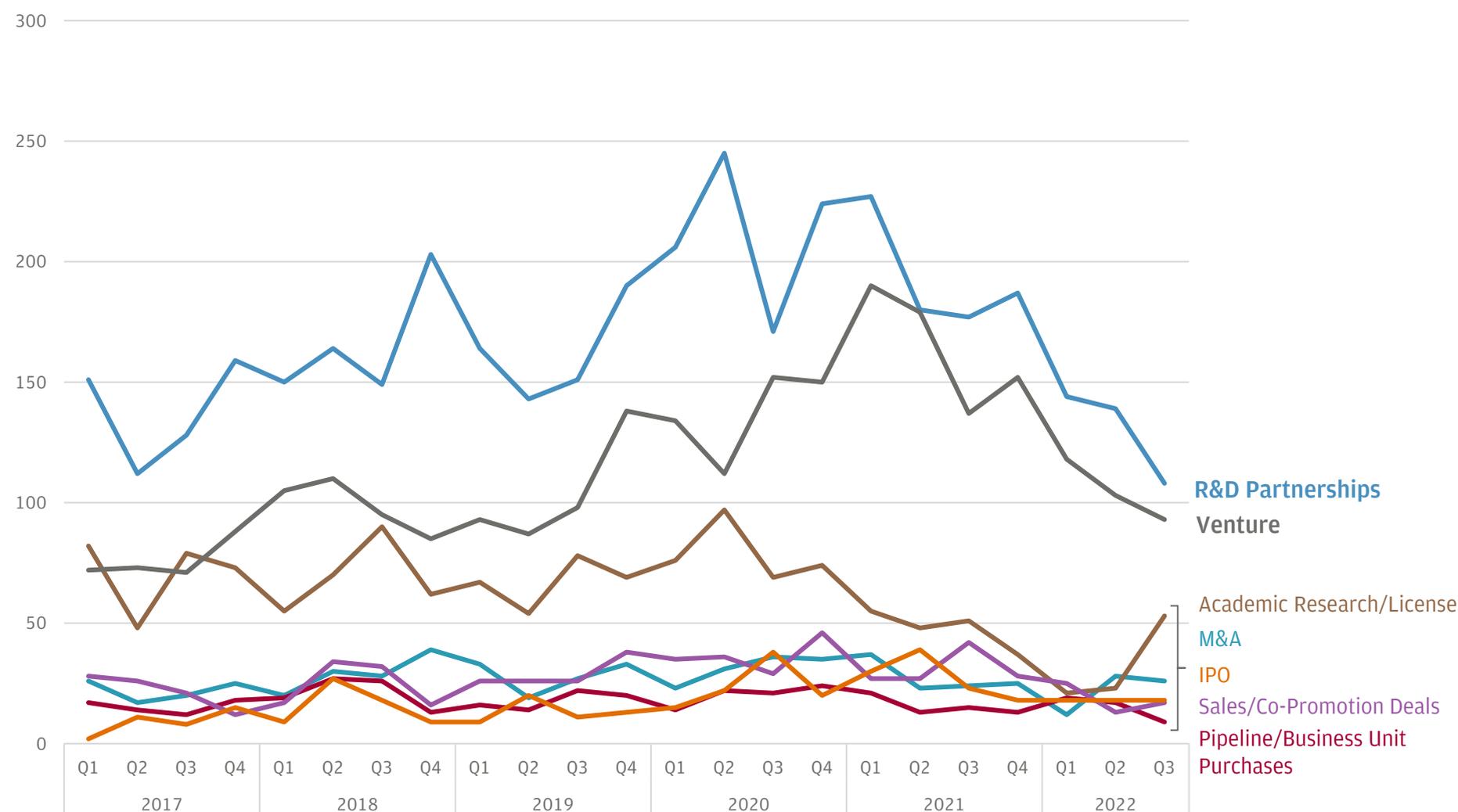
Biopharma deal and funding activity continued its slowdown into Q3 2022. Quarterly R&D partnerships and venture rounds have been declining since early 2021, despite deal values propping up overall volume.

In Q3 2022, there were:

- 324 total transactions across venture rounds and IPOs, deals, and M&A
- 108 biopharma R&D licensing partnerships signed, lower than early 2017
- 93 venture rounds completed for drug and platform developers, down from 103 last quarter and Q1 2021's peak of 190 funding rounds

Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

Biopharma therapeutics and discovery platform deal flow: Total number of deals



Biopharma licensing and M&A

Biopharma licensing upfront totals were lower on fewer deals and a shift to milestones

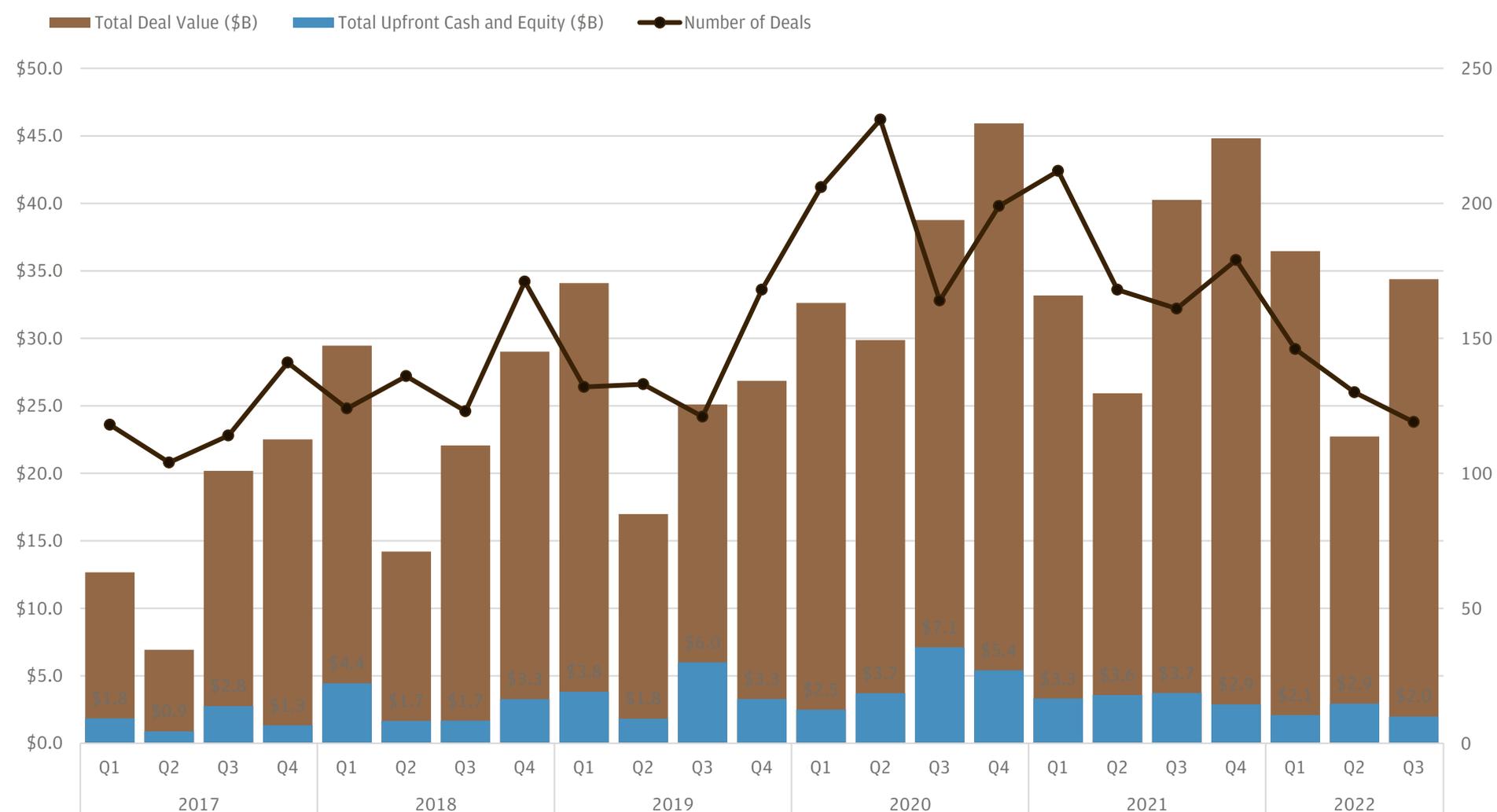
Biopharma companies relied on licensing partnerships as a source of upfront capital and product development expertise—especially when facing tighter capital markets. Third quarter total upfront cash and equity from R&D licensing dropped lower from fewer deals being signed. The selective deal structures and secondary asset partnerships are making way for core program licenses and worldwide rights, which may also drive larger deal upfront terms.

Q3 2022 highlights:

- 119 biopharma R&D licensing partnerships signed, down from 130 in Q2 and 146 in Q1
- \$2 billion in total upfront cash and equity for licensing therapeutics and discovery platforms, down from Q2 2022
- \$34.4 billion in total announced deal values as milestones tracked higher to mitigate risk in early-stage deal programs

Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

Biopharma therapeutics and platforms: R&D partnership/licensing totals (\$B) and number of deals

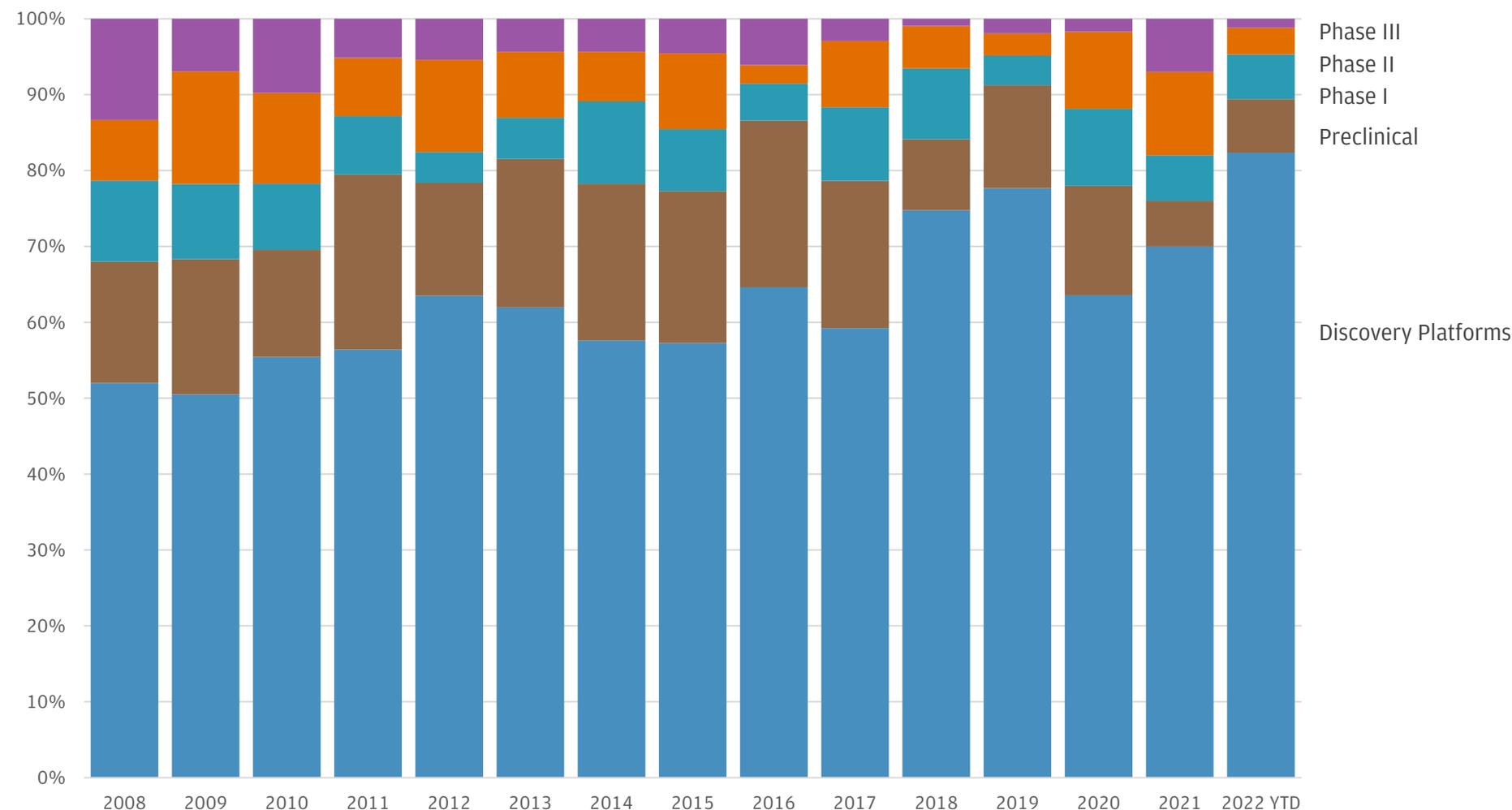


Over 80% of large-cap biopharma in-licensing is from discovery and technology platforms

Large-cap biopharma (\$50 billion+) continued to push earlier into technology platform in-licensing to capture a larger share of potential assets in discovery. By Q3 2022, more than 80% of deals signed were for the earliest programs where the partner can guide multiple programs into preclinical and clinical development.

- Large-cap biopharma in-licensed 85 deals in Phase III and earlier stages year-to-date.
- Over 89% of 2022 YTD in-licensing partnerships signed into large-cap biopharma were for discovery platforms and preclinical compounds.

In-licensing by large-cap biopharma (\$50B+): Share of R&D partnerships by stage at signing



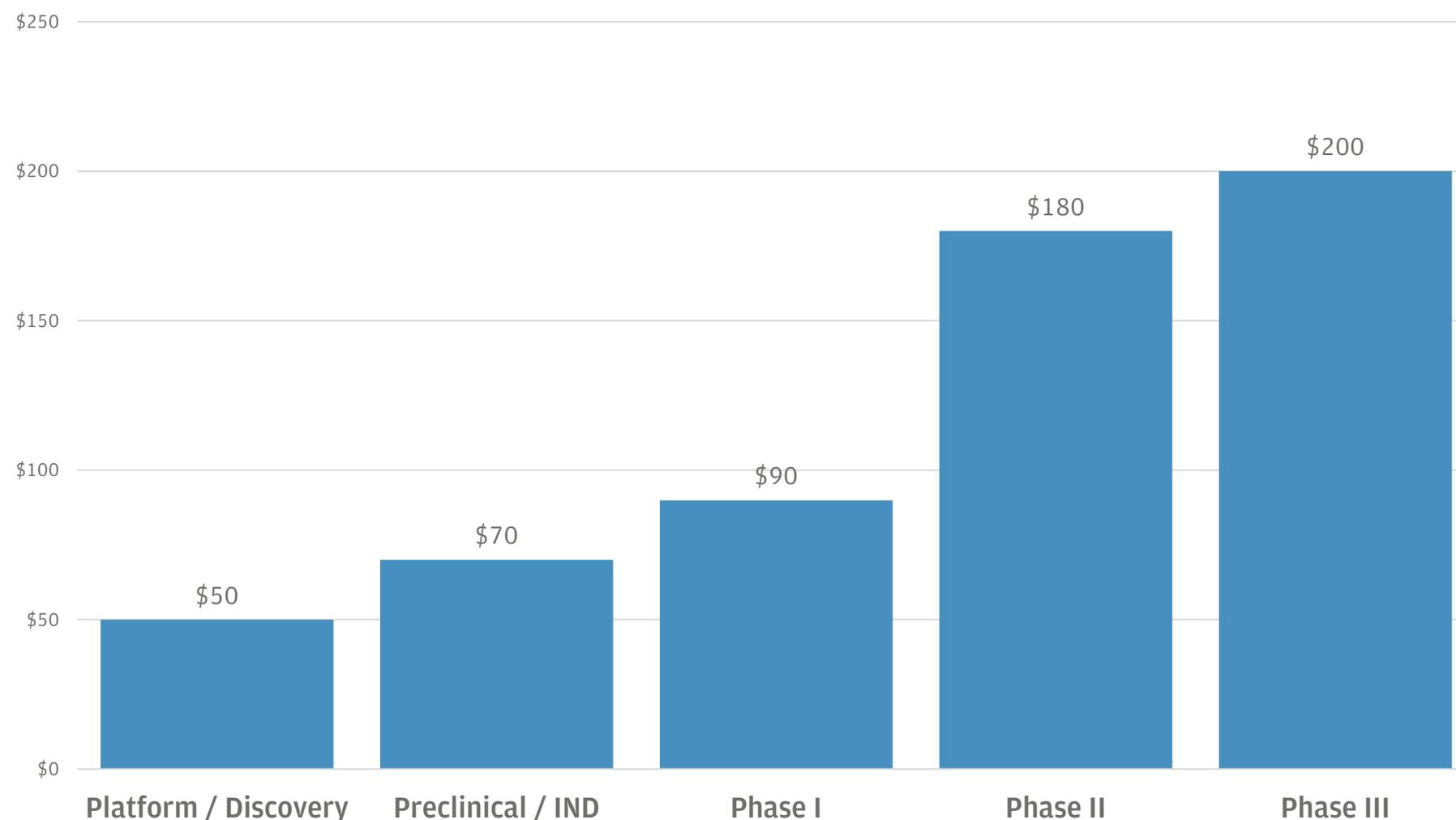
Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

Phase II still brings in the largest increase in upfront payments from large-cap biopharma

More of large-cap biopharma's in-licensing deal volume is being signed in the discovery stage; still, the largest increase in upfront payments comes at Phase II. Assets licensed in either Phase II or with Phase II data brought in a median of \$180 million in upfront cash and equity, doubling Phase I stage deals.

- \$50 million median upfront cash and equity for platform and discovery stage in-licensing
- Large jump to \$180 million upfront cash and equity at Phase II when large-cap biopharma is signing

Large-cap biopharma in-licensing from smaller bio: Median upfront cash & equity by stage (2017-22)



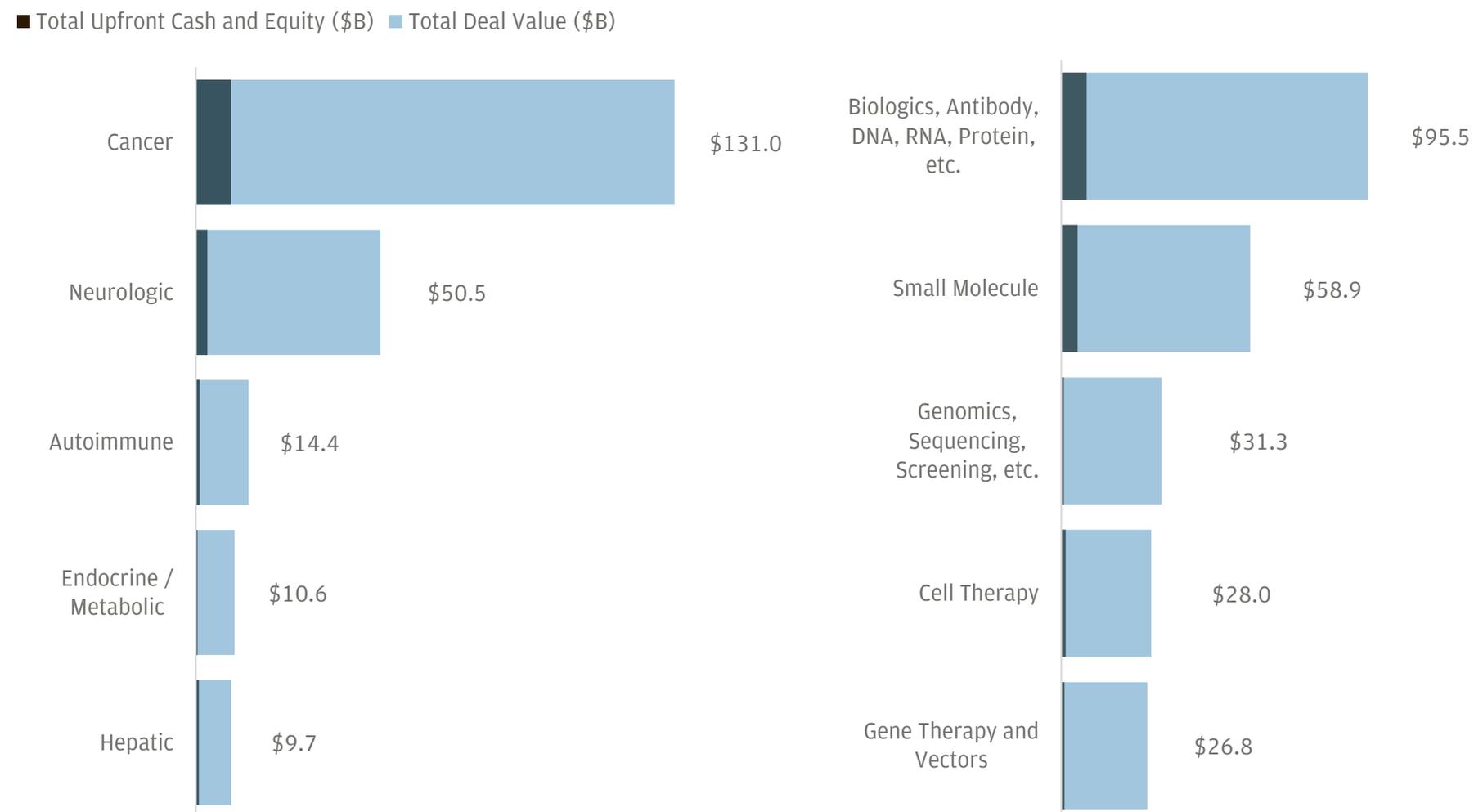
Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

Oncology and biologics still lead overall biopharma dealmaking

Tracking biopharma's deal focus on therapy areas and modalities, oncology and biologics continues to hold the most valuable spots while others shuffle at the top.

- \$9.6 billion in upfront cash and equity for cancer program in-licensing by biopharma in 2021 and through Q3 2022. \$131 billion in total announced deal value.
- \$7.9 billion in upfront cash and equity for biologics in-licensing during the same period with \$95.5 billion in total announced deal value among other therapeutic modalities.

Top therapy areas and modalities in-licensed within biopharma: Total and upfront values, 2021-22 YTD



Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

Cell and gene therapy in-licensing attracted higher upfront payments through Q3 2022

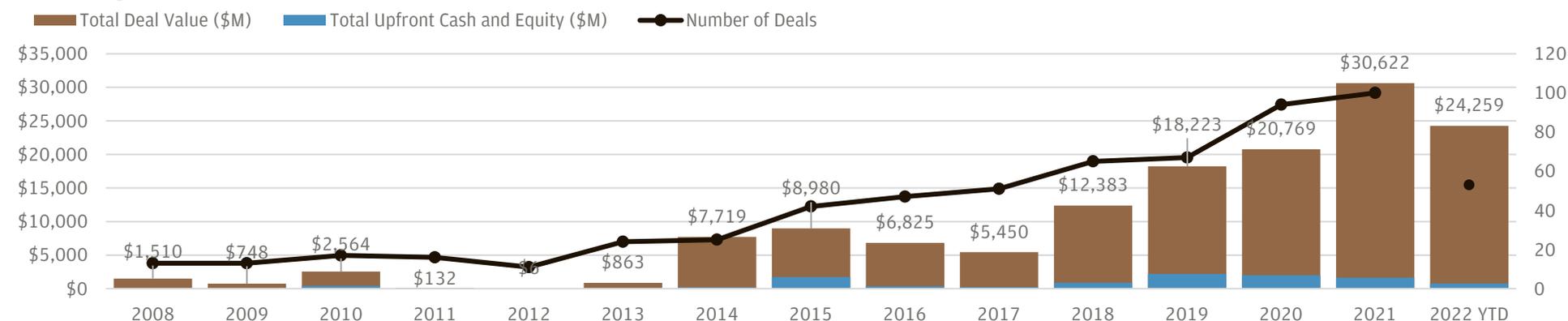
Median upfront cash and equity payments tracked higher for R&D partnerships in cell and gene therapy partnerships. Advanced modalities continue to attract higher upfront value with higher contingent deal value in milestones.

In 2022 YTD:

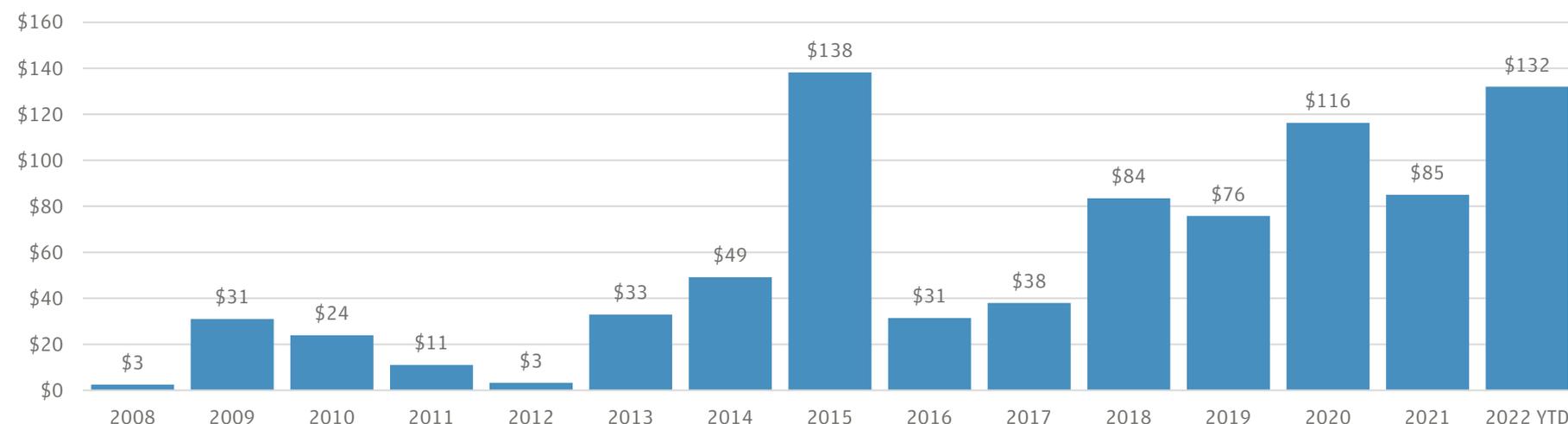
- \$132 million median upfront cash and equity across 53 deals for cell and gene therapy in-licensing. This is the second highest on record and higher than other modalities including small molecules and biologics.
- \$24 billion in total announced deal value in 2022 YTD as milestone terms stacked higher to de-risk early-stage transactions.

Cell and gene therapy in-licensing: Number of deals, total values and median upfront cash & equity (\$M)

Cell and gene therapy: R&D partnership activity



Median upfront cash & equity (\$M)



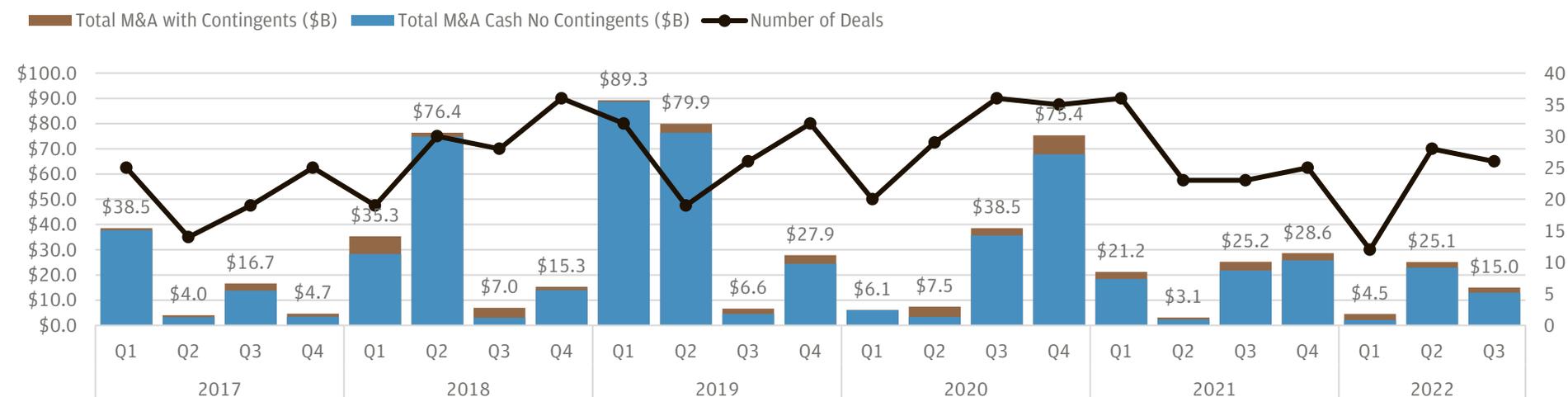
Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

Quarterly biopharma M&A activity is returning despite smaller deal values

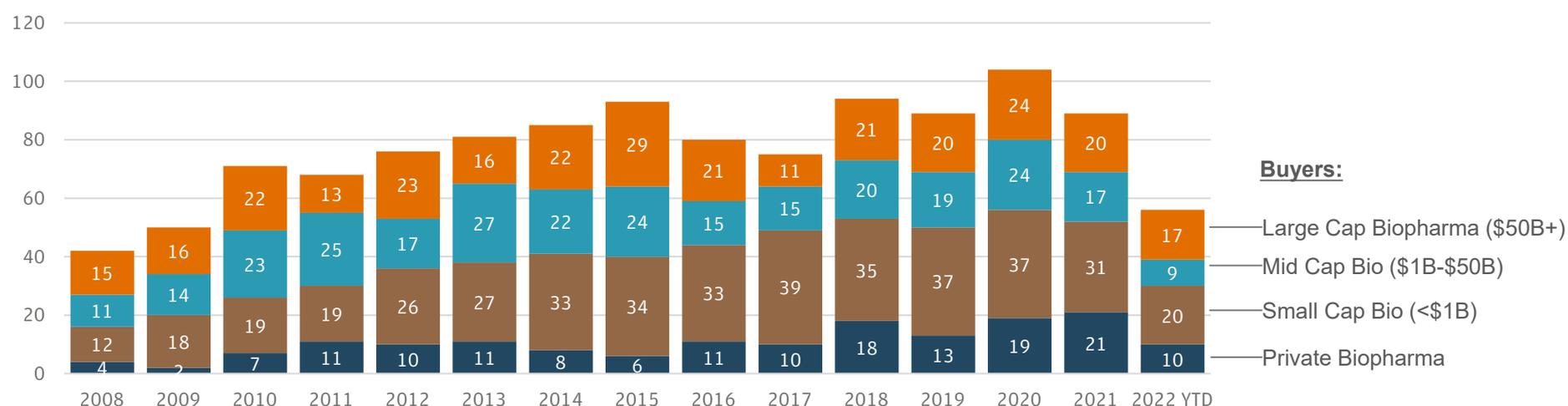
Quarterly biopharma M&A activity returned to mid-2021 levels with number of deals signed. But total deal values remain depressed. Small-cap biopharma continued to make up a large portion of buyers of other biopharma by number of deals.

- 26 M&A transactions for biopharma therapeutics and platform companies were announced in Q3 2022, bringing the total to 66 biopharma acquisitions this year.
- \$15 billion in total announced M&A deal value for biopharma companies when counting contingent values—which is still a low quarterly total.
- 20 biopharma companies were acquired by small-cap biopharma peers under \$1 billion in market cap with 10 more by private biopharma buyers.

M&A: Biopharma therapeutics and platforms: Number of deals, values and size of biopharma buyers



Who are the buyers? Number of biopharma-to-biopharma M&A deals



Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

Biopharma venture highlights

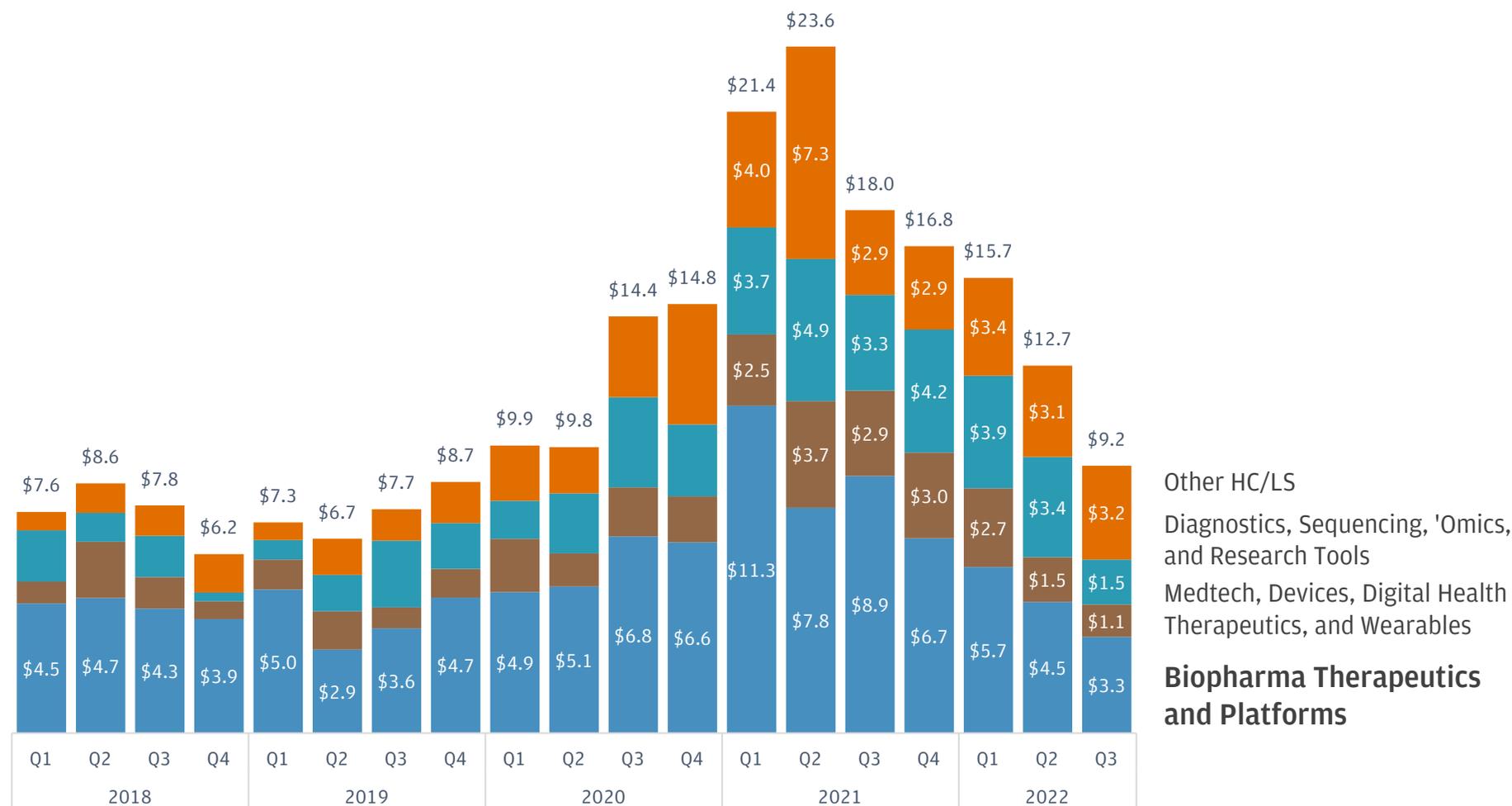
Third quarter biopharma venture investment tracked lower to below Q3 2019

Quarterly venture investment activity into biopharma therapeutics and platform companies continued a stepwise decline through Q3 2022, taking the quarterly total back to 2019 levels.

In Q3 2022, there were:

- \$3.3 billion in total venture rounds into biopharma therapeutics and platform companies, down from \$4.5 billion last quarter.
- \$9.2 billion in total across all healthcare and life sciences subsectors, down from \$12.7 billion last quarter.

Venture totals by healthcare and life sciences subsector



Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

Average venture rounds into early-stage biopharma held steady

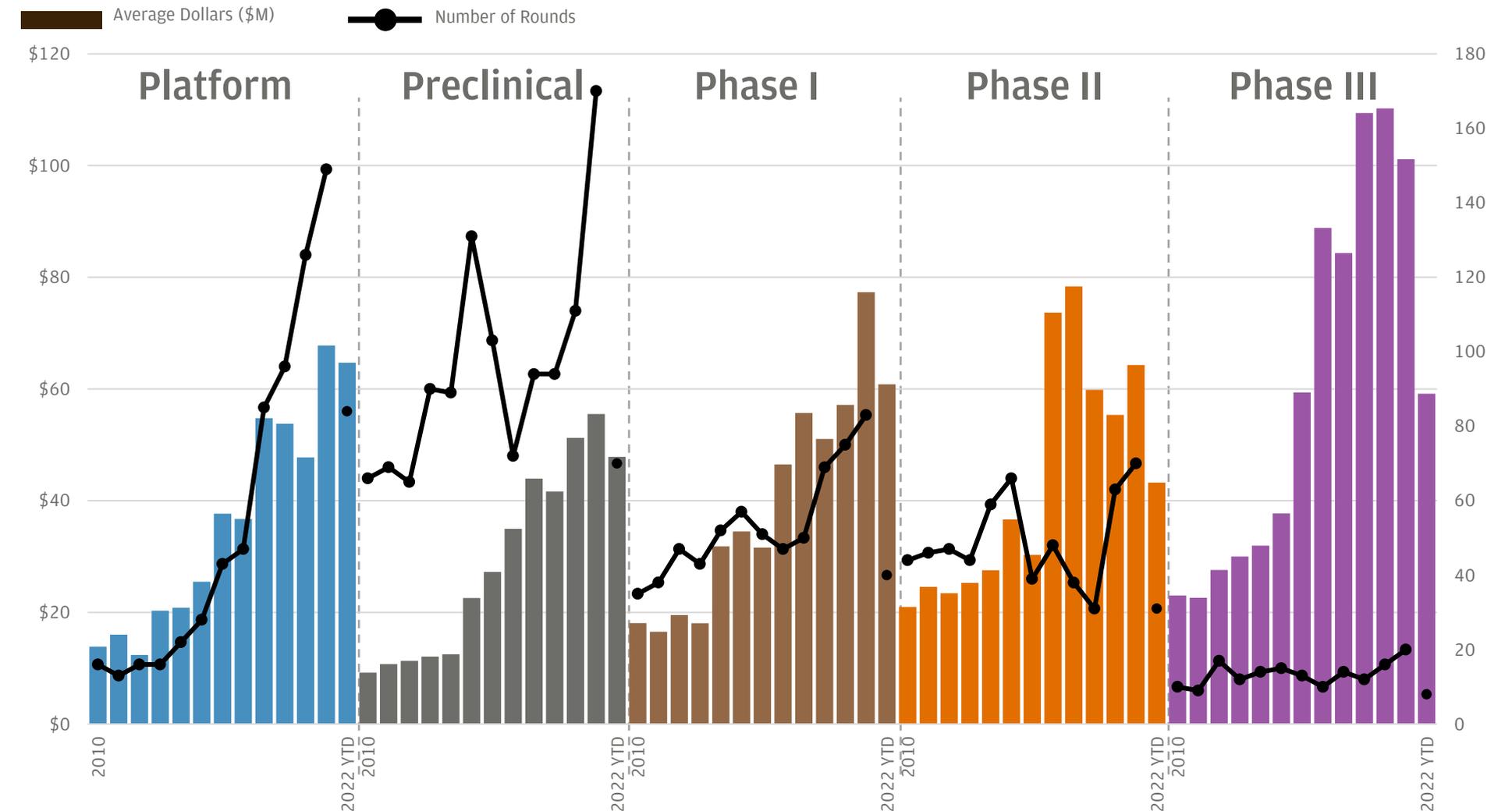
Platform and preclinical-staged biopharma companies fared best in attracting venture dollars, though in later series rounds into these earliest companies.

Through Q3 2022:

- \$65 million average venture round into platform and discovery-stage biopharma companies across 84 rounds. This is down from a \$68 million average and 149 rounds in 2021.
- \$48 million average venture round into biopharma companies with at least a preclinical compound across 70 rounds. Preclinical venture activity is down from a \$56 million average round size and 170 rounds, which set a record for activity in 2021.

Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

Biopharma therapeutics and platforms: Average venture rounds by company stage at funding



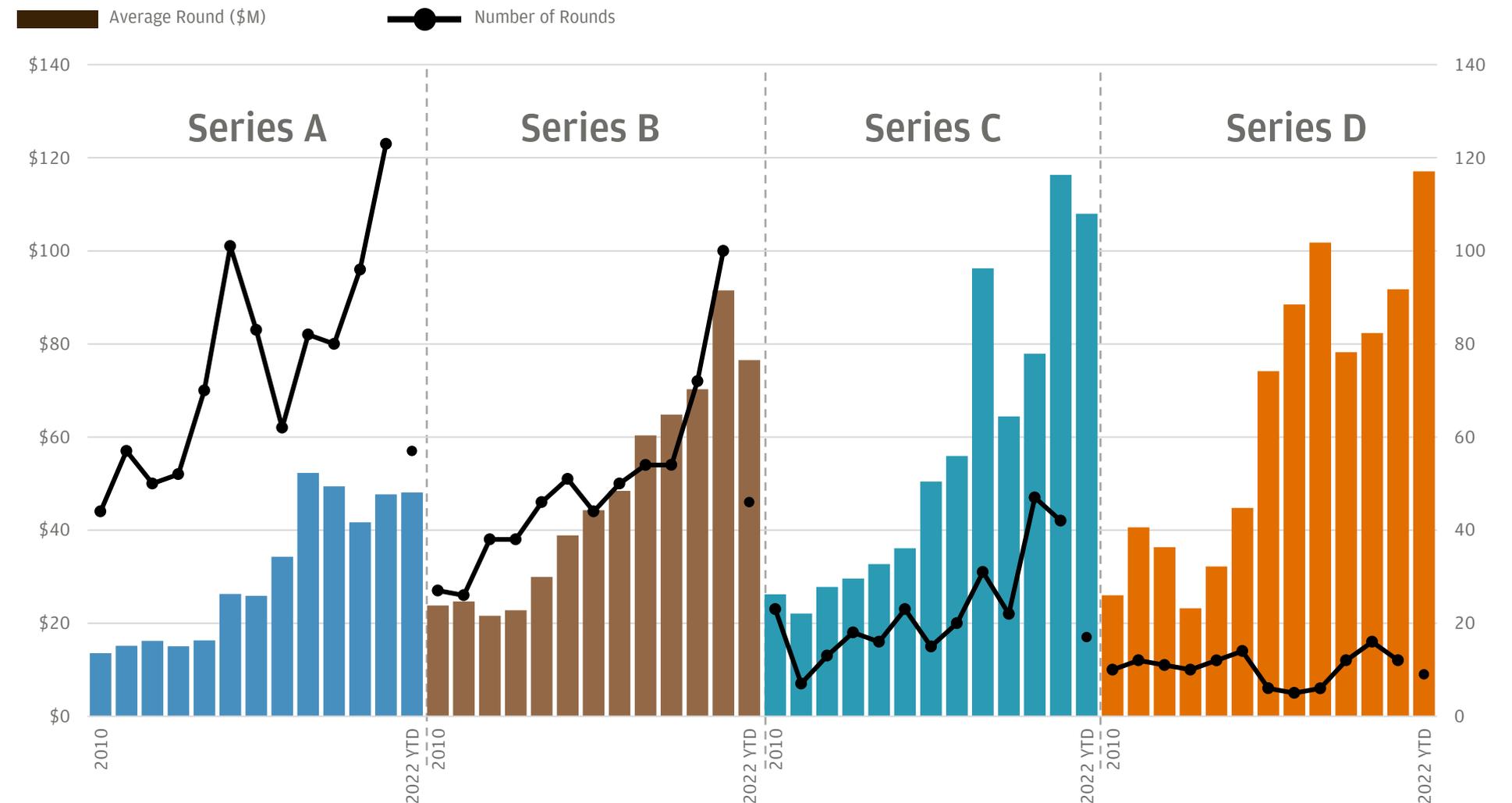
Shifting to later venture rounds into existing biopharma companies

Despite the overall decline in the number of rounds and dollar totals, biopharma venture averages continued to track higher for later series as existing companies raised additional rounds instead of IPOs.

Through Q3 2022:

- \$117 million average Series D across 9 rounds. There were 12 Series D rounds in all of 2021.
- Series A dollar averages are holding steady at \$48 million despite the drop in number of rounds to 57, down from 123 in 2021.

Biopharma therapeutics and platforms: Average venture rounds by series



Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

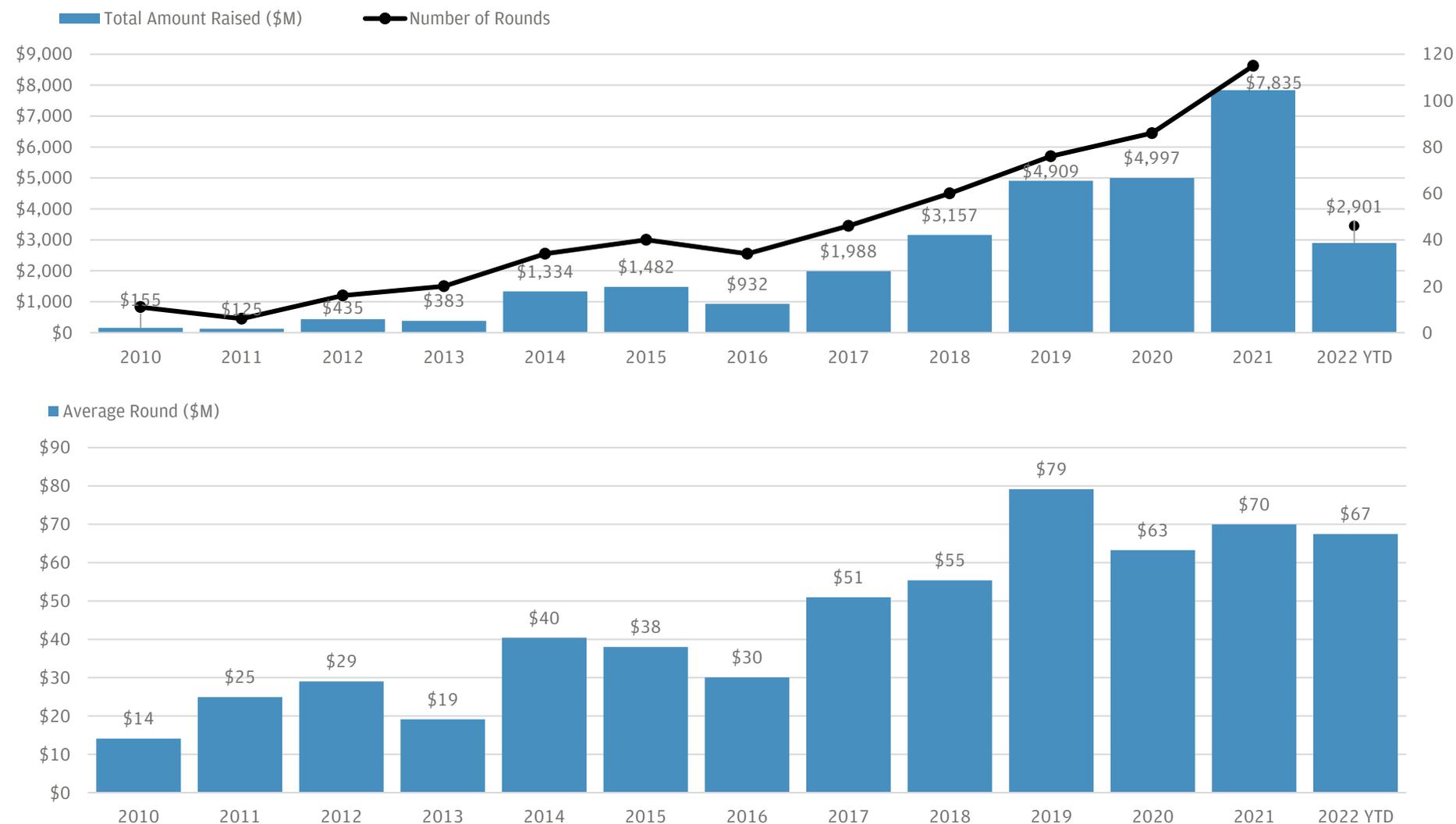
Cell and gene therapy venture round averages are steady despite lower overall activity

Biopharma companies developing advanced cell and gene therapies have increasingly attracted a larger share of venture investment, peaking at \$7.8 billion in 2021 across 115 rounds. The drop through Q3 2022 brought this to \$2.9 billion and 46 rounds. Average round sizes for cell and gene therapy across all series has held steady since 2020.

Through Q3 2022:

- \$2.9 billion in 46 venture rounds for cell and gene therapy companies
- \$67 million average venture round size across all series, down slightly from \$70 million in 2021

Cell and gene therapy venture investment: Number of venture rounds, totals and average values (\$M)



Source: DealForma.com database
Financials based on disclosed figures. Data through Oct. 3, 2022.

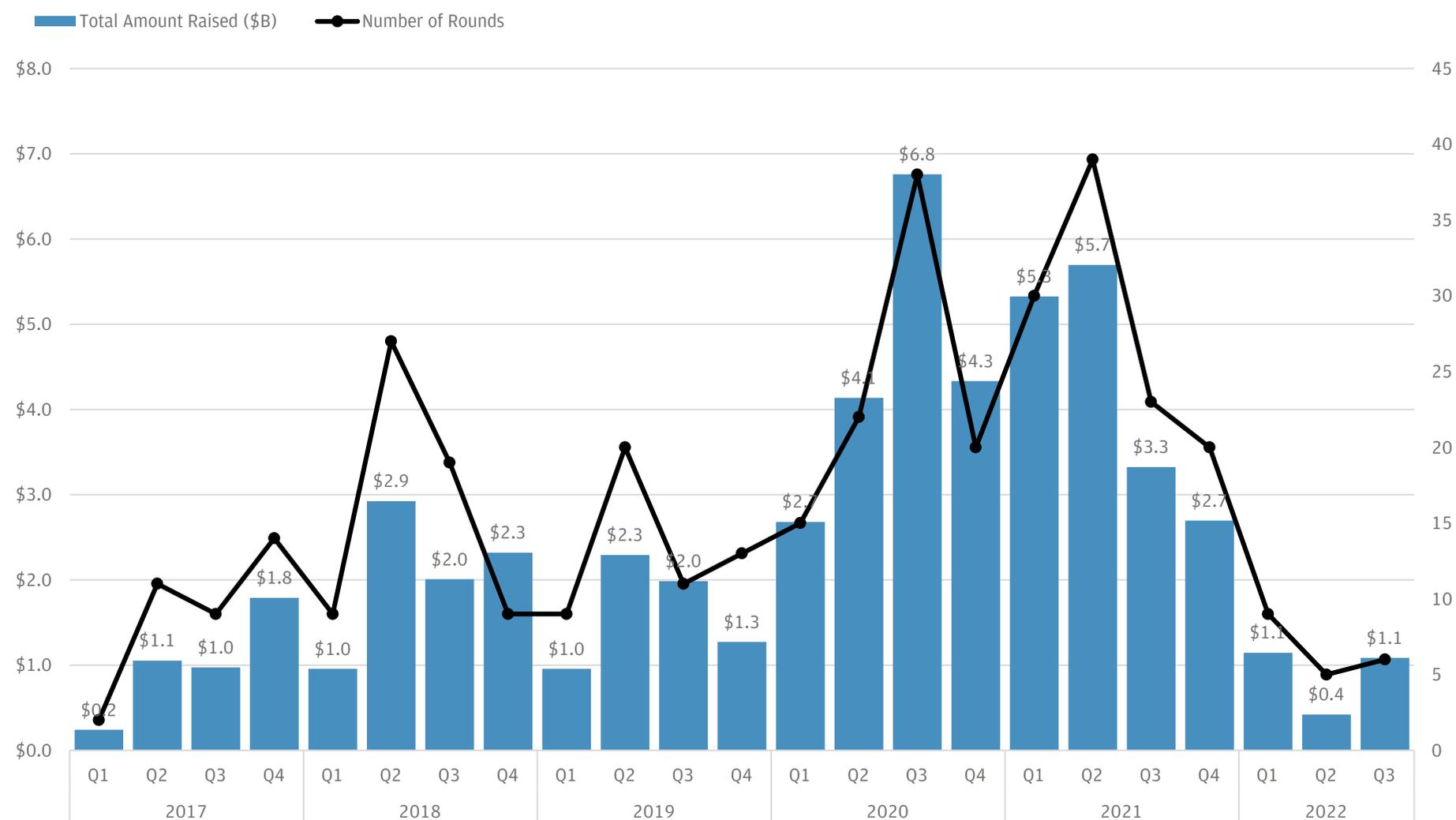
Biopharma IPO activity showed a slight uptick in Q3 but otherwise looks like 2017

Biopharma company IPO activity continued to drop from the highs of 2020 and 2021. Third quarter 2022 fared slightly better than Q2 with \$1.1 billion in six initial filings.

In Q3 2022:

- \$1.1 billion in six newly-filed and completed IPOs.
- The recent biopharma IPO filings were for companies with more advanced pipelines than in previous years.

Active & completed IPOs in biopharma therapeutics and platforms: Number of IPOs and totals (\$B)



Source: DealForma.com database
Financials based on disclosed figures. IPOs by first filing date. Data through Oct. 3, 2022.

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