

White Paper

# 2023 Deal-Making Roundup



April 2024

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During 2023, the biopharma industry achieved a total potential deal value (PDV) of \$186.9 billion across 718 alliances. While deal volume for alliances saw a substantial drop in 2023, the overall aggregate value was \$10 billion more than 2022. Once again, oncology was the most active therapeutic area for partnering, with deals focused on antibody drug conjugates (ADCs) leading the way.

Similarly, merger and acquisition volumes showed a slight decrease (7%) from the previous year, with 135 deals together valued at \$158.2 billion, but the aggregate deal value rose significantly (83%) from 2022. The M&A values were also significantly higher than in 2022 largely due to 27 deals having values of a billion dollars or greater, four of which were more than \$10 billion. Acquisitions of ADC-focused companies were also prominent in 2023.

Biopharma financing, which brought in an aggregate \$74.2 billion, also saw a decline in the number of transactions (936 vs. 960 in 2022) but exceeded overall 2022 values (\$66.6 billion) by 11%, with the average deal value increasing by 14%.

In the medtech industry, financing activity saw a decline in both dollars and deal volume in 2023 (\$8.9 billion for 300 deals vs. \$13 billion for 356 deals in 2022). M&A activity was particularly strong, with seven separate billion-dollar-plus acquisitions; however, total 2023 medtech M&A spend was \$26.5 billion from 80 deals, decreasing from \$34.3 billion from 92 deals in 2022.

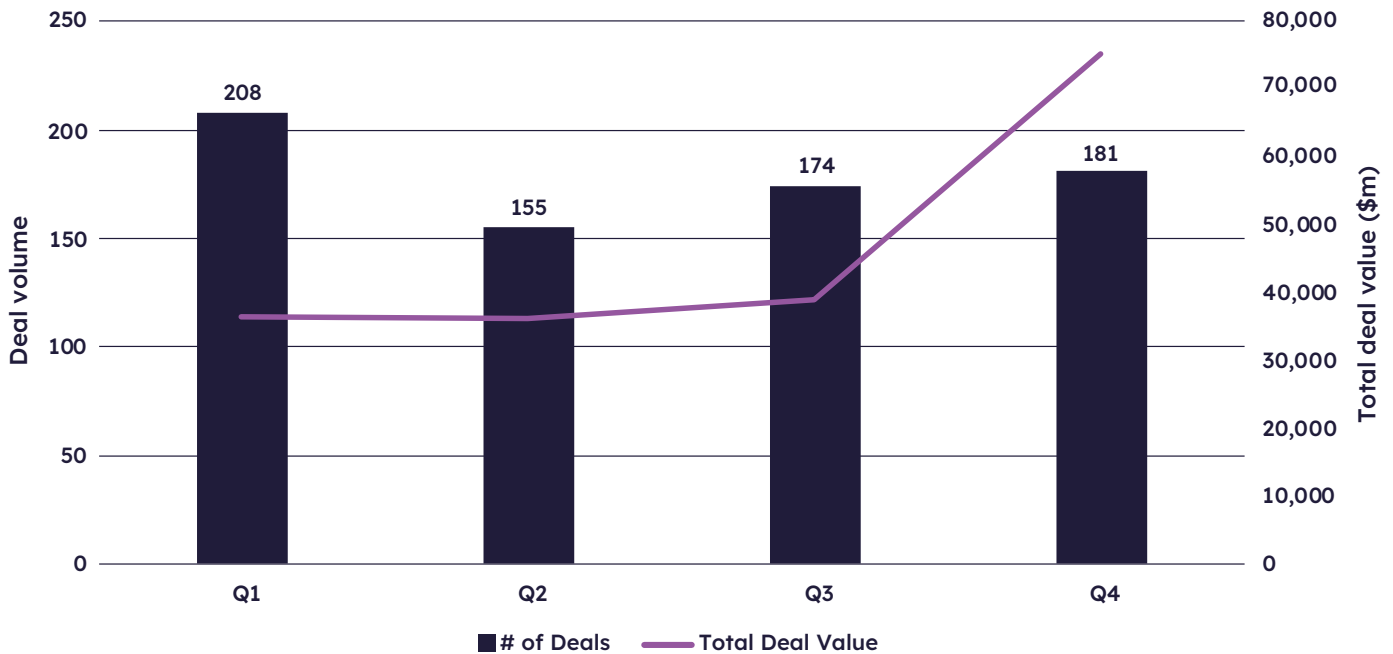
This report provides an overview of alliance, merger and acquisition, and financing deal activity across the worldwide biopharma, medical device, and in vitro diagnostics industries during 2023 as reported by Biomedtracker. The overall data is presented across deal types, therapy areas, and payment or financing structures. The top deals by dollar value in each space are closely detailed. Note that PDV is defined as the sum of disclosed up-front payment(s) plus any announced or received pre- or post-commercialization milestone payment(s).

## Biopharma Alliances

Biopharma alliances for 2023 reached a total PDV of \$186.9 billion from 718 transactions (291 with disclosed values) [Figure 1]. In terms of deal volume, Q1 was the most active quarter of the year, with 208 transactions. In relation to PDV, Q4 was the highest at \$75.4 billion, and had the highest-valued deal of the year:

a collaboration between Merck and Daiichi Sankyo, worth up to \$22 billion (making up 29% of the Q4 total PDV). The 2023 aggregate alliance dollars increased by 5% in value over 2022's \$178.3 billion, but the 2023 full-year biopharma alliance deal volume showed an 18% decline versus 2022's 880 transactions.

**Figure 1.** 2023 biopharma deal volume and value distributions, by quarter



Source: Biomedtracker, February 2024

# 2023 Deal-Making Roundup

In the largest alliance of the year, Daiichi Sankyo and Merck penned a potential \$22 billion deal involving three of Daiichi's DXd ADCs: patritumab deruxtecan, ifinatamab deruxtecan, and raludotatug deruxtecan [Table 1]. The companies will jointly develop and commercialize the candidates worldwide, except in Japan where Daiichi maintains exclusive rights. Patritumab deruxtecan was granted Breakthrough Therapy Designation by the FDA in December 2021 for EGFR-mutated

locally advanced or metastatic non-small cell lung cancer with disease progression on or after treatment with a third-generation tyrosine kinase inhibitor and platinum-based therapies. BLA submission in the US is planned by the end of March 2024 for patritumab deruxtecan. Ifinatamab deruxtecan is in Phase II for previously treated extensive-stage small cell lung cancer, and raludotatug deruxtecan is in a first-in-human Phase I trial for ovarian cancer.

**Table 1.** Top 10 2023 biopharma alliances, by potential deal value

Deal Date	Licensee	Licenser	Deal Subject(s)	Potential Deal Value (\$m)	Estimated Royalty Range
Oct. 19	Merck	Daiichi Sankyo	Global (excluding Japan) development and commercialization agreement for three of Daiichi's DXd antibody drug conjugate oncology candidates: patritumab deruxtecan (HER3-DXd), ifinatamab deruxtecan (I-DXd), and raludotatug deruxtecan (R-DXd)	22,000	Undisclosed
Dec. 11	Bristol Myers Squibb	SystImmune	BMS gets exclusive worldwide rights (excluding mainland China) to SystImmune's BL-B01D1 for metastatic or unresectable non-small cell lung cancer	8,400	Undisclosed
Jan. 9	Neurocrine Biosciences	Voyager Therapeutics	Neurocrine receives worldwide rights to Voyager's GBA1 program for Parkinson's and three other gene therapy candidates directed to rare neurological disease targets	4,410	4-29%
Sep. 7	Seagen	Nurix Therapeutics	Multiyear, multi-target collaboration and license agreement to jointly advance a new class of medicines called Degradable-Antibody Conjugates (DACs) in cancer	3,460	4-13%

# 2023 Deal-Making Roundup

Oct. 17	Roche	Monte Rosa	Exclusive global agreement to use Monte Rosa's QuEEN platform for the discovery and development of molecular glue degraders against targets in cancer and neurological diseases previously considered impossible to drug	3,078	7-14%
Jul. 24	Roche	Alnylam	License agreement to develop and commercialize Alnylam's RNAi candidate zilebesiran for the treatment of hypertension	2,800	10-29%
Jul. 10	Janssen	Nanobiotix	Licensing agreement for Nanobiotix's radioenhancer NBTXR3, being evaluated in several studies across solid tumor indications	2,764	10-99%
Sep. 25	Novo Nordisk	Valo Health	Agreement to discover and develop novel treatments for cardiometabolic diseases based on Valo's Opal Computational Platform, a large human dataset and computation powered by artificial intelligence (AI)	2,760	Undisclosed
Apr. 5	Merck	Proxygen	Multiyear collaboration and license agreement to jointly identify and develop molecular glue degraders against undisclosed targets	2,550	Undisclosed
Dec. 12	Merck	C4 Therapeutics	Exclusive worldwide agreement for the development of DACs for oncology using C4's Torpedo platform	2,500	Undisclosed
Jun. 30	Bausch & Lomb	Novartis	B&L acquired Novartis' Xiidra for dry eye disease, SAF312 (libvatrep) for chronic ocular surface pain (COSP), and OJL332, for an undisclosed ophthalmic indication; plus, rights to use the AcuStream delivery device in dry eye indications	2,500	NA

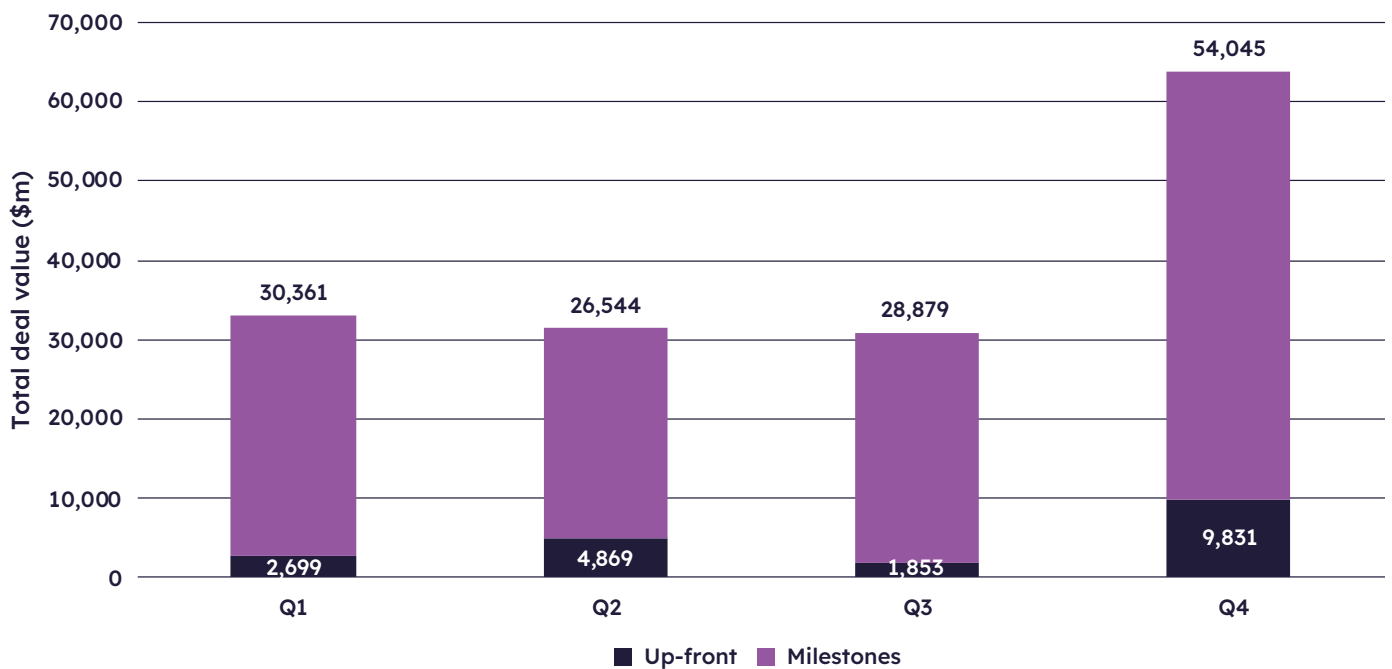
Source: Biomedtracker, February 2024

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For 2023 overall, deals with an announced milestone accounted for 75% of the total PDV in the 196 deals in which the milestone was disclosed, while up-fronts made up just 10% of the total PDV in the set of 200 for which the up-front amount was disclosed [Figure 2]. There were 48 deals in all with disclosed potential future payments of a billion dollars or more; the Merck/Daiichi Sankyo collaboration deal was at the top with its up to \$16.5 billion in possible

milestones, making up the bulk of the deal's value. Of the transactions with disclosed values, there were four deals with the up-front amount exceeding a billion dollars. After Merck/Daiichi Sankyo, with its \$4 billion up-front amount, the next highest was Bausch & Lomb's \$1.75 billion payment for Novartis' dry eye ophthalmic solution Xiidra (lifitegrast), accounting for 70% of the deal's total \$2.5 billion PDV.

**Figure 2.** 2023 biopharma alliance deal breakdown, by payment type



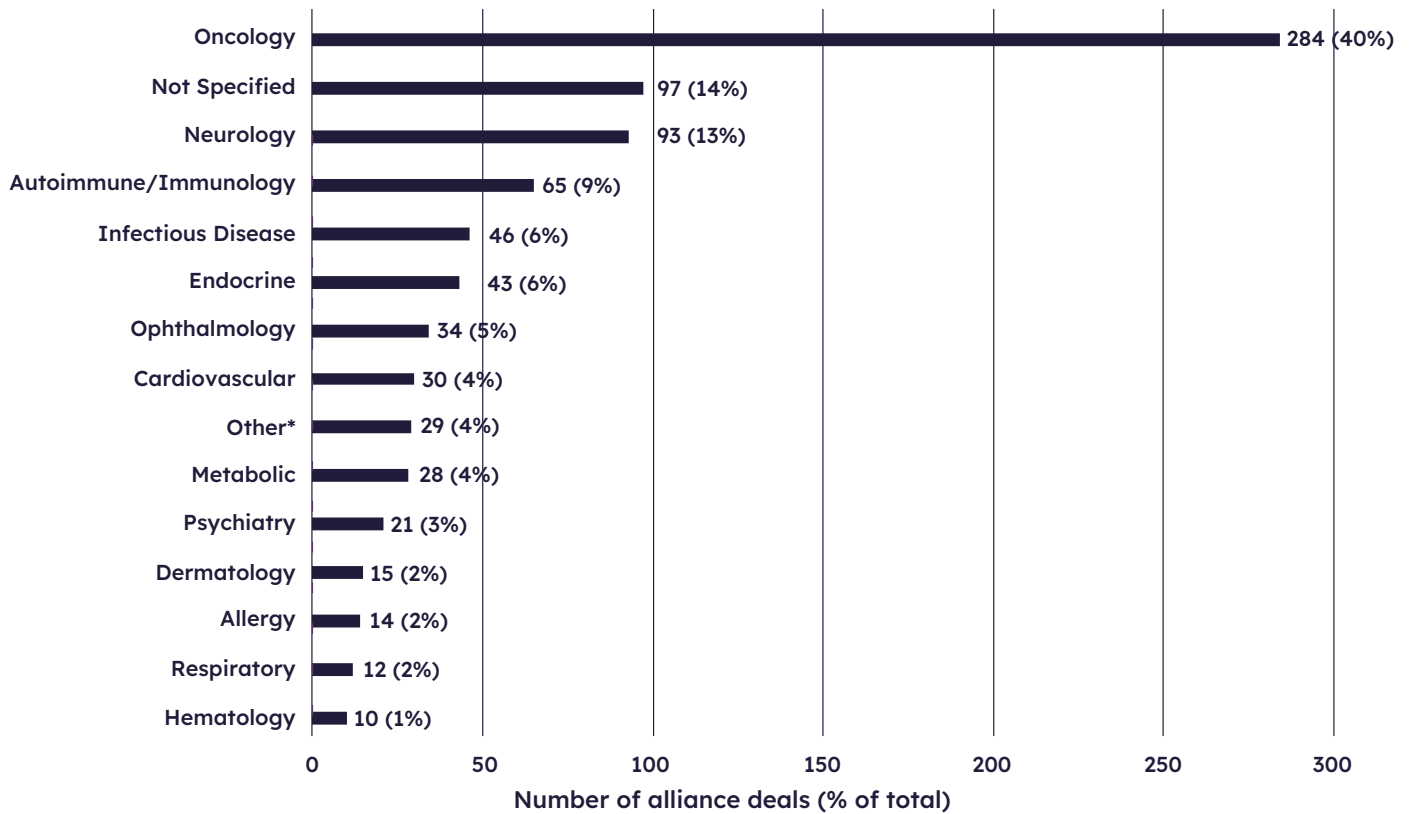
Source: Biomedtracker, February 2024

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Oncology was the most active therapeutic area for partnering during 2023, with 284 deals (40% of all partnerships) having at least one asset in this disease area [Figure 3]. Oncology was followed by deals with no therapy area specified

and neurology (with 97 and 93 deals apiece, respectively). Autoimmune/immunology was the subject of 65 alliances, representing 9% of the aggregate deal volume.

**Figure 3.** 2023 biopharma alliances across therapy area, by deal volume



Note: Deals involving more than one asset or therapy area may be counted multiple times; cumulative percentages will therefore exceed 100%.

\*Includes ENT/dental, gastroenterology, obstetrics/gynecology, orthopedics, renal, rheumatology, and urology.

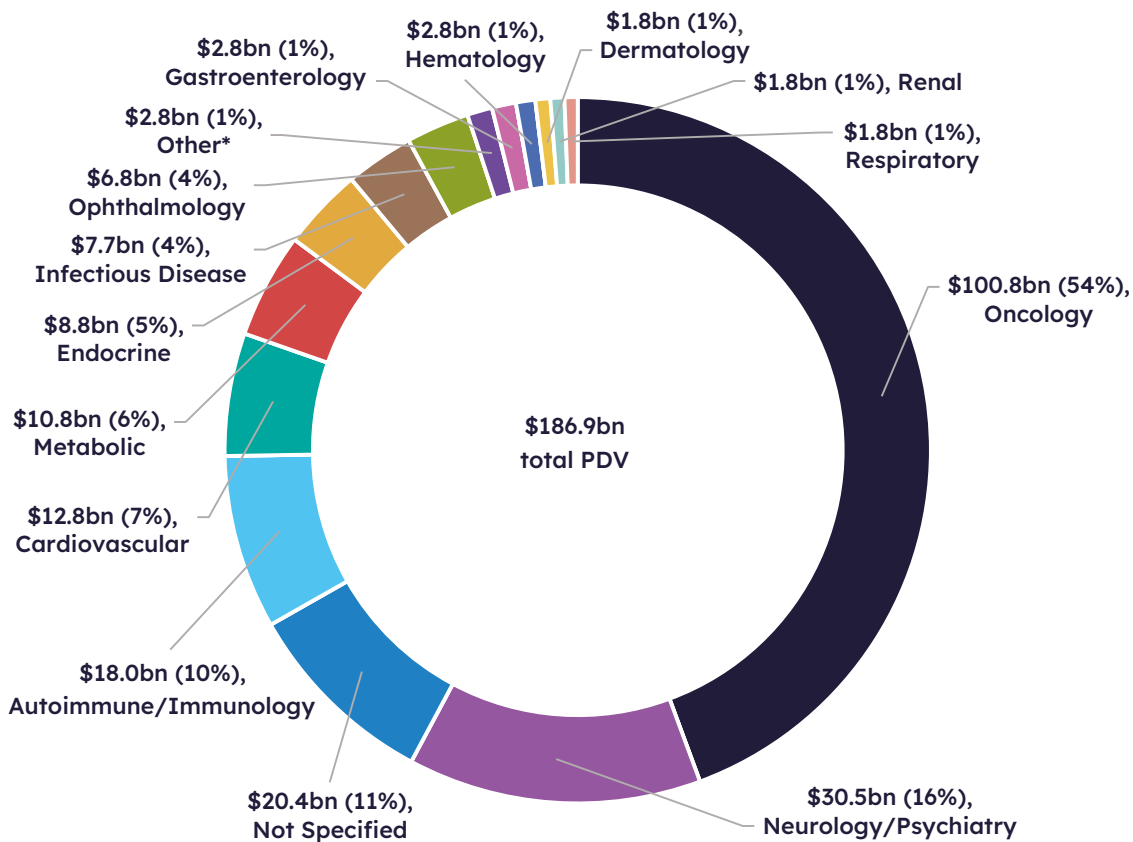
Source: Biomedtracker, February 2024

# 2023 Deal-Making Roundup

Deals involving oncology assets also made up the greatest percentage (54%) of aggregate potential 2023 deal value, with \$100.8 billion [Figure 4]. In addition to its top oncology partnership with Daiichi, Merck also penned two other cancer-focused licensing arrangements with biotechs during 2023. In a deal worth up to \$2.5 billion, it partnered with C4 Therapeutics to discover and develop degrader-antibody conjugates for up to four undisclosed oncology targets. Merck also teamed up with Astex Pharmaceuticals, using the latter's fragment-based discovery platform to develop small-molecule candidates targeting multiple forms of the p53 tumor suppressor protein for the treatment of cancer in a deal valued at up to

\$535 million. Neurology/psychiatry-focused deals brought in the next-most dollars, with \$30.5 billion in aggregate PDV (16% of the 2023 total). The highest valued deal in this space was an agreement that could total \$4.4 billion between Neurocrine Biosciences and Voyager Therapeutics, with Neurocrine receiving worldwide rights to Voyager's GBA1 gene therapy program directed to the gene that encodes glucosylceramidase beta 1 (GBA1) for Parkinson's disease as well as three new gene therapy programs directed to rare CNS targets. Deals for which no therapeutic area was specified were next at \$20.4 billion, or 11% of overall PDV.

**Figure 4.** 2023 biopharma alliances across therapy area, by deal value



Note: Deals involving more than one asset or therapy area may be counted multiple times; cumulative percentages will therefore exceed 100%.  
 \*Includes allergy, ENT/dental, obstetrics/gynecology, orthopedics, rheumatology, and urology.

Source: Biomedtracker, February 2024

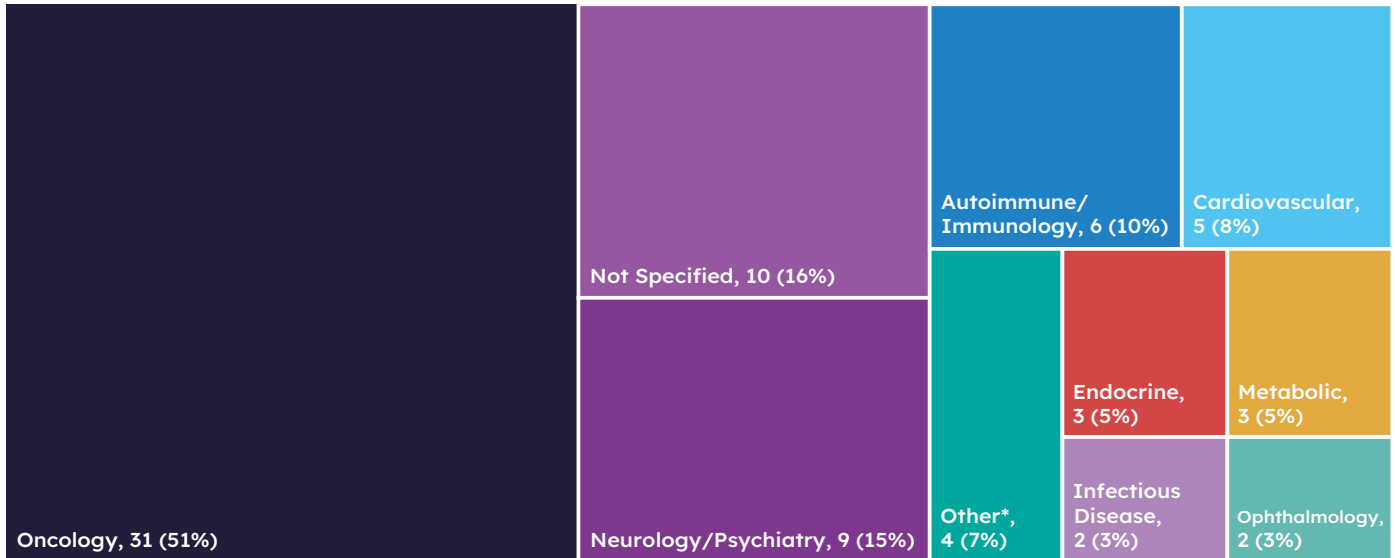


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There were 61 alliances reaching or surpassing a billion dollars during 2023, slightly outpacing the 56 deals hitting that same milestone in 2022.

In terms of deal volume, over half (31) of the partnerships in this subset of deals centered around an oncology asset [Figure 5].

**Figure 5.** Therapeutic area distribution for 2023 biopharma alliances exceeding \$1bn in value, by deal volume



Note: Deals involving more than one asset or therapy area may be counted multiple times; cumulative percentages will therefore exceed 100%.  
 \*Includes one deal apiece in each of the following categories: gastroenterology, hematology, renal, and respiratory.

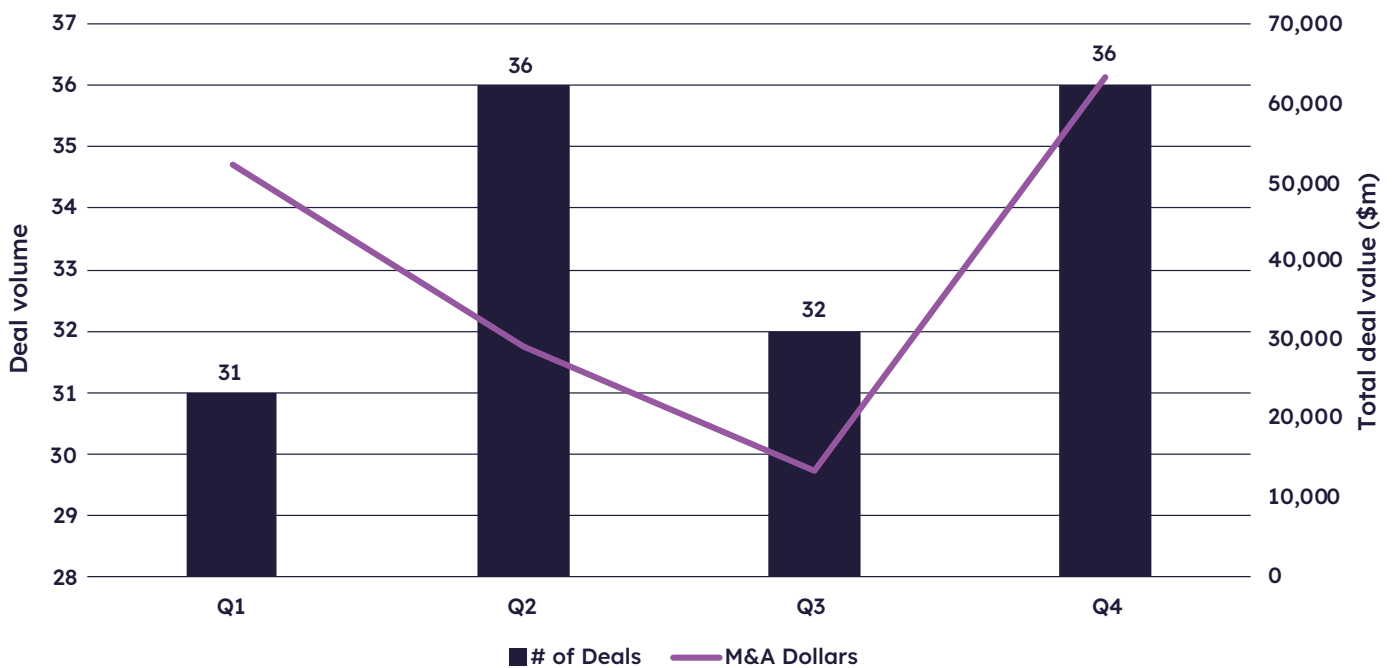
Source: Biomedtracker, February 2024

## Biopharma Acquisitions

For the full year, biopharma M&A activity totaled \$158.2 billion from 135 transactions, 74 of which had disclosed values and 27 that met or exceeded the billion-dollar mark [Figure 6]. Q4 was the highest in terms of deal value, with \$63.3 billion for the 23 deals with values disclosed, having the most (11) exceeding \$1 billion. Q4 also tied with Q2 for most volume, with 36 transactions completed in each quarter. Q1 had the second-highest total deal value, most of which was attributed to Pfizer's

acquisition of Seagen, but was the lowest of the year for deal volume with 31 transactions. Not including the Pfizer/Seagen outlier, Q1 deal value totals just \$9 billion. Deal value was the lowest during Q3, with an aggregate \$13.5 billion for 32 deals. Although the 2023 M&A dollars were significantly higher than 2022's \$86.3 billion (even removing the Pfizer/Seagen outlier), 2023 deal activity showed a 7% decline from 2022's 145 transactions (74 with values), 16 of which exceeded \$1 billion.

**Figure 6.** 2023 biopharma M&A activity, by quarter



Source: Biomedtracker, February 2024

# 2023 Deal-Making Roundup

During 2023, 27 biopharma M&As (20% of the aggregate deal volume) had a deal value of \$1 billion or more, compared to 16 (11% of the total deal volume) in 2022. Four acquisitions exceeded the \$10 billion-plus mark [Table 2]. In the largest M&A for the biopharma industry overall, Pfizer acquired oncology company Seagen for a whopping \$43 billion in cash. Seagen uses its antibody-drug conjugate (ADC) technology to harness the targeting power of antibodies to deliver small molecule drugs to the tumor. The company also uses a sugar-engineered antibody technology, an approach

that may improve the immune response to cancer cells. Seagen has developed four of the 12 total FDA-approved and marketed ADCs. Its products include Adcetris (brentuximab vedotin) for certain CD30-expressing lymphomas, including Hodgkin’s disease; Padcev (enfortumab vedotin) for metastatic urothelial cancer; Tivdak (tisotumab vedotin) for metastatic cervical cancer; and Tukysa (tucatinib) for the treatment of certain HER2-positive metastatic breast and colorectal cancers.

**Table 2.** Top 10 2023 biopharma M&As by potential deal value

Date Announced	Date Closed	Acquirer	Acquired (Business)	Terms	Potential Deal Value (\$m)
Mar. 23	Dec. 14	Pfizer	Seagen (using ADC technology to deliver small-molecule drugs to the tumor)	\$229 per share in cash (a 29% premium); 21.5x sales	43,000
Dec. 22	Mar. 18, 2024	Bristol Myers Squibb	Karuna Therapeutics (developing medicines for psychiatric and neurological conditions)	\$330 per share in cash (a 54% premium)	14,000
Apr. 16	Jun. 16	Merck	Prometheus Biosciences (developing treatments and companion diagnostics for immune-mediated diseases)	\$200 per share in cash (an 80% premium)	10,800
Nov. 30	Feb. 12, 2024	AbbVie	ImmunoGen (developing next-generation ADCs for cancer)	\$31.26 per share in cash (a 98% premium)	10,100
Dec. 6	Not yet closed	AbbVie	Cerevel Therapeutics (has a neuroscience pipeline of multiple clinical-stage and preclinical candidates with potential across several diseases)	\$45 per share in cash (a 67% premium)	8,700
Jul. 28	Sep. 26	Biogen	Reata Pharmaceuticals (developing therapeutics for serious and life-threatening diseases, with a focus on antioxidative and anti-inflammatory drugs)	\$172.50 per share in cash (a 58% premium)	7,300
Oct. 23	Dec. 14	Roche	Telavant (a Roivant/Pfizer joint venture formed to develop the TL1A-directed antibody RVT-3101 in the US and Japan)	\$7.1bn up-front in cash and \$150m payable upon completion of a near-term milestone	7,250
Apr. 30	Jul. 11	Astellas	Iveric Bio (developing ophthalmology treatments)	\$40 per share in cash (a 31% premium)	5,928

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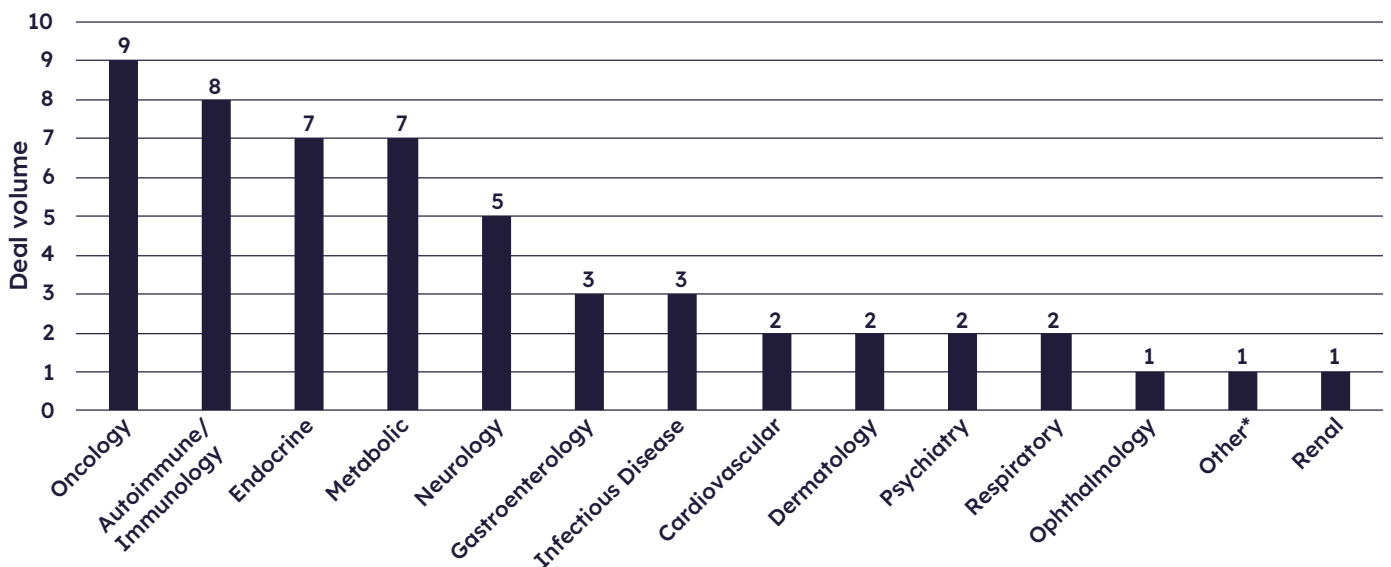
Oct. 8	Jan. 23, 2024	Bristol Myers Squibb	Mirati Therapeutics (developing cancer therapies)	\$58 per share in cash (a 25% premium) and up to \$1bn in earn-outs	5,800
Dec. 26	Feb. 26, 2024	Bristol Myers Squibb	RayzeBio (developing actinium-based radiopharmaceutical therapeutics)	\$62.50 per share in cash (a 134% premium)	4,100

Source: Biomedtracker, February 2024

The main therapeutic area of interest in terms of deal volume for 2023 M&A deals exceeding a billion dollars was oncology, with nine transactions in all involving companies with at least one pipeline asset in this space [Figure 7]. Within this subset, two transactions were completed by companies focused purely within immuno-oncology: AbbVie’s \$10.1 billion buy of ImmunoGen, a developer of next generation ADCs, and AstraZeneca’s \$1.2 billion purchase of Gracell Biotechnologies, which is developing

autologous and allogeneic CAR-T cell therapies. There were seven acquisitions of rare disease-centered companies, with those collective pipelines spanning 10 disease areas. In the highest-valued transaction, Biogen paid \$7.3 billion for Reata Pharmaceuticals, developer of FDA-approved Skyclarys (omaveloxolone) for Friedreich’s ataxia and pipeline candidates with indications in diabetic neuropathy and inflammatory disorders.

**Figure 7.** Therapy area distribution for 2023 biopharma M&As exceeding \$1bn in potential deal value, by deal volume



Note: Deals in which acquired companies have assets in more than one therapy area may be counted multiple times.

\*Refers to Viatris’ pending \$1.4bn divestiture of its over-the-counter, women’s healthcare (primarily oral and injectable contraceptives), and active pharmaceutical ingredient businesses.

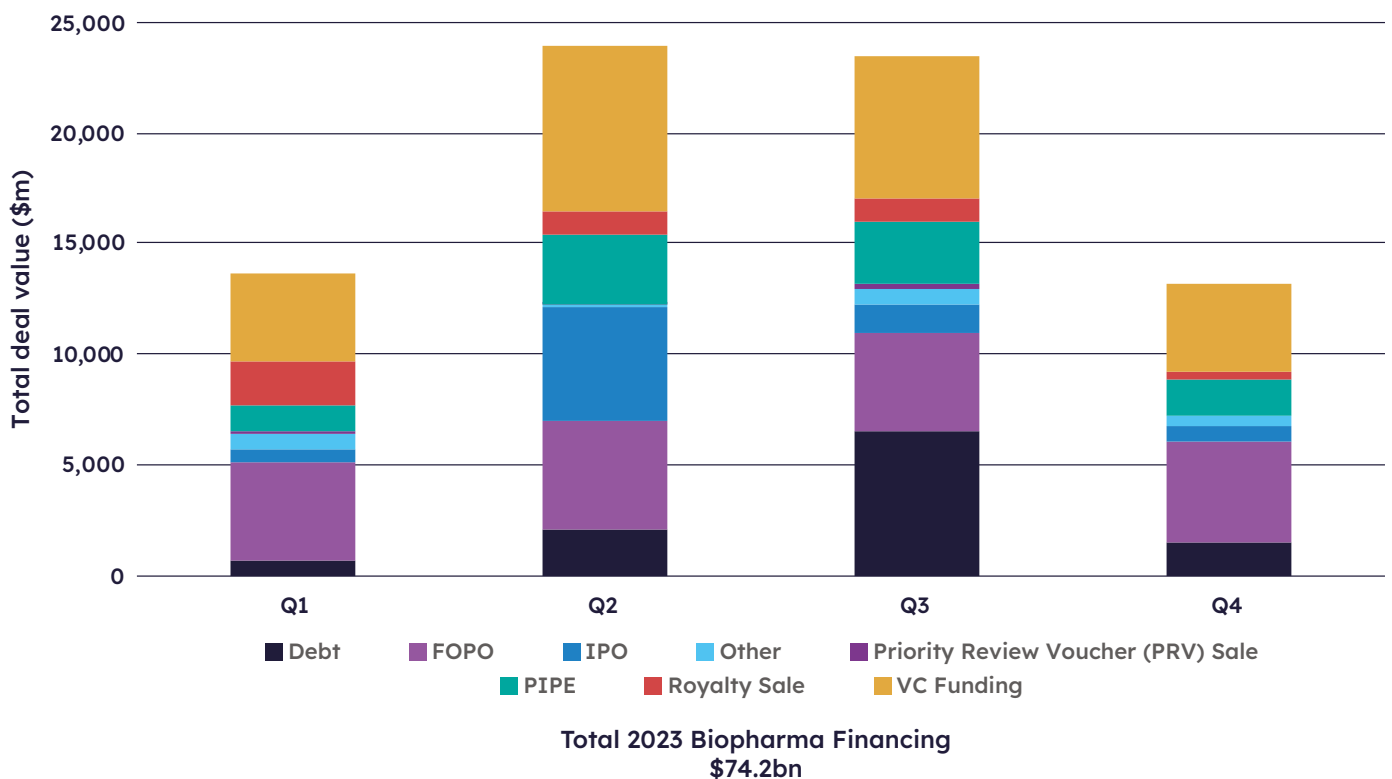
Source: Biomedtracker, February 2024

## Biopharma Financings

Total biopharma financing for 2023 reached \$74.2 billion from 936 transactions [Figure 8]. This demonstrated an 11% increase from 2022's total value of \$66.6 billion and a slight drop in deal volume from 960 transactions. The second and third quarters of 2023 were relatively even around the \$24 billion mark, with Q4 standing out as the lowest in terms of dollar value at \$13.1 billion, followed by Q1 with \$13.7 billion.

Q2 was the highest in deal volume with 274 transactions. Overall, across all financing types, six deals met or topped the billion-dollar mark. The largest financing of the year was a \$5 billion nonconvertible debt placement by Sandoz International (generics and biosimilars) concurrent with its spin-off from parent Novartis (completed in October 2023) to become a standalone company.

**Figure 8.** Total money invested in biopharma in 2023, by quarter and deal type



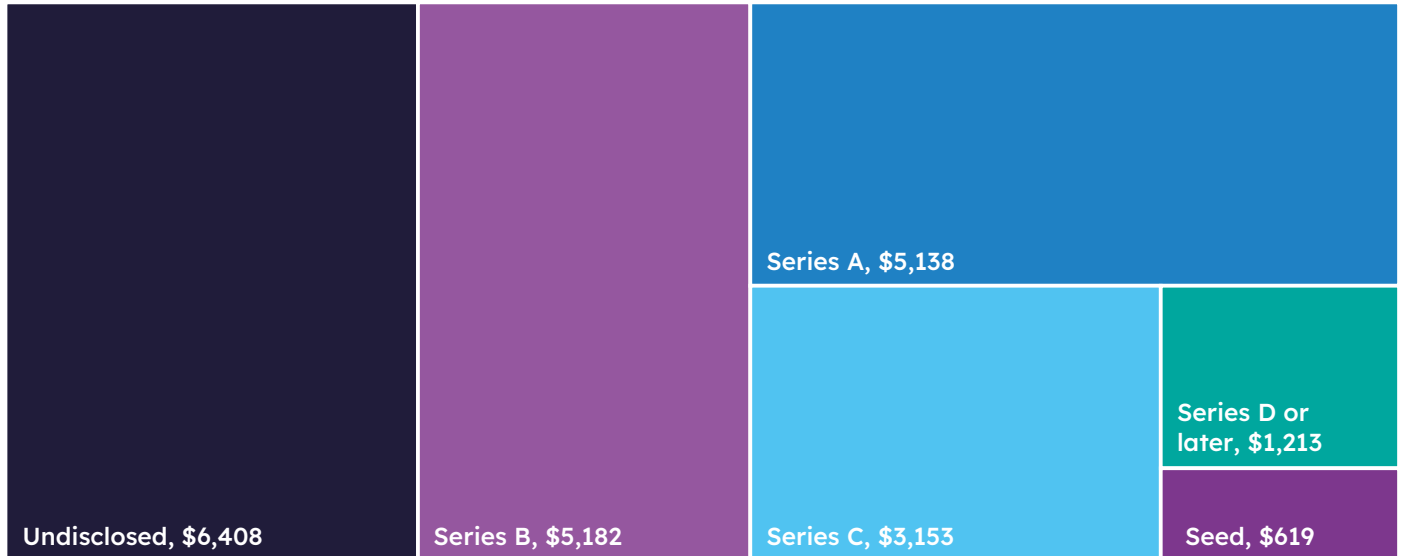
Source: Biomedtracker, February 2024

# 2023 Deal-Making Roundup

The category making up the biggest proportion of the total 2023 biopharma funding in both deal value (29%) and deal volume (35%) was venture capital (VC) financing, totaling \$21.7 billion from 328 transactions. This represents a decline from 2022, in which 423 VC rounds together totaled \$23.7 billion. There were 64 rounds of \$100 million or more during 2023 overall (versus 67 in 2022), with two deals exceeding \$1 billion: undisclosed rounds by Bausch & Lomb (\$1.9 billion in venture debt to finance its pending acquisition of dry eye drug Xiidra (lifitegrast ophthalmic solution) 5% from Novartis) and dermatology focused Galderma (\$1 billion). Undisclosed rounds took the lead in terms of deal value at \$6.4 billion aggregate, accounting for approximately 29% of the total 2023 VC rounds [Figure 9]. (If we remove the

Bausch & Lomb and Galderma outlier rounds, the undisclosed category drops to \$3.5 billion.) Series A and Series B rounds were tied for bringing in the second-most dollars, with an aggregate of approximately \$5.1 billion apiece, each category making up 24% of the 2023 total value. Of these, Chinese company Hasten Biopharmaceutic (building a pipeline of cardiometabolic candidates for chronic diseases) raised the most in its \$315 million Series A round, while the largest Series B round was by 2021 start-up Upstream Bio (advancing therapies for allergic and inflammatory diseases), which raised \$200 million. In terms of deal volume, the most deals (88, or 27% of all VC funding volume) were completed by companies raising Series A funds, followed by Series B rounds at 70 transactions.

**Figure 9.** Total money invested in biopharma venture rounds in 2023, by round number (\$m)



Source: Biomedtracker, February 2024

# 2023 Deal-Making Roundup

Overall, 34 initial public offerings were completed across all industries, compared to 49 that closed in 2022. Within biopharma, IPO activity reached \$7.6 billion, with 31 completed transactions (in 2022, total biopharma IPO proceeds were \$2.3 billion, with 31 completed transactions) [Table 3]. Raising the most was Kenvue, the spin-off of Johnson & Johnson’s Consumer Health business, which netted \$4.2 billion through its upsized initial public offering. In connection with the offering, the

company entered a series of transactions with J&J that will result in the transfer of assets to Kenvue. As partial consideration for the assets, Kenvue will pay J&J all of the net proceeds received from the IPO. As a standalone pure-play consumer health company, Kenvue will have a portfolio of well-known self-care, skin care and beauty, and essential personal care brands such as Neutrogena, Aveeno, Tylenol, Listerine, Band-Aid, Zyrtec, and Nicorette.

**Table 3.** Top 10 biopharma initial public offerings in 2023

Date	Company	Company Area(s) of Focus	Amount Raised (\$m)
May 4	Kenvue	Spin-off of Johnson & Johnson’s Consumer Health business	4,241
May 5	Acelyrin	Medicines in immunology	578
Jul. 17	Apogee Therapeutics	Biologic therapies to address immunological and inflammatory conditions	321
Sep. 18	RayzeBio	Radiopharmaceuticals against validated solid tumor targets	313
Nov. 13	CARGO Therapeutics	Next-generation cell therapies for cancer	297
Sep. 18	Neumora Therapeutics	Precision medicines for brain diseases	233
Feb. 14	Mineralys Therapeutics	Medicines to target diseases driven by abnormally elevated aldosterone	205
Oct. 24	Abivax	Therapies to modulate the immune response in patients with chronic inflammatory diseases	202
Jul. 11	Sichuan Kelun-Biotech	Novel drug development using a systematic, indication-oriented approach with a focus on oncology and immunology	186
Feb. 6	Structure Therapeutics	Oral small-molecule therapeutics for metabolic and pulmonary diseases	172

Source: Biomedtracker, February 2024

Six biopharma start-ups — companies founded within the last four years — raised a combined \$5.6 billion in IPOs in 2023, of which 78% was attributed to Kenvue’s initial public offering. Four of the six start-ups going public — Kenvue, Acelyrin, Apogee, and RayzeBio — were among the top overall

IPO fundraisers in 2023 as noted above. The two others were Cadrenal Therapeutics (developing the cardiorenal therapy tecarfarin) raising \$6.5 million in January 2023 and Mira Pharmaceuticals (cannabinoid drug development for neuropsychological indications) closing an \$8.3 million IPO in August.

## Medtech Deal-Making

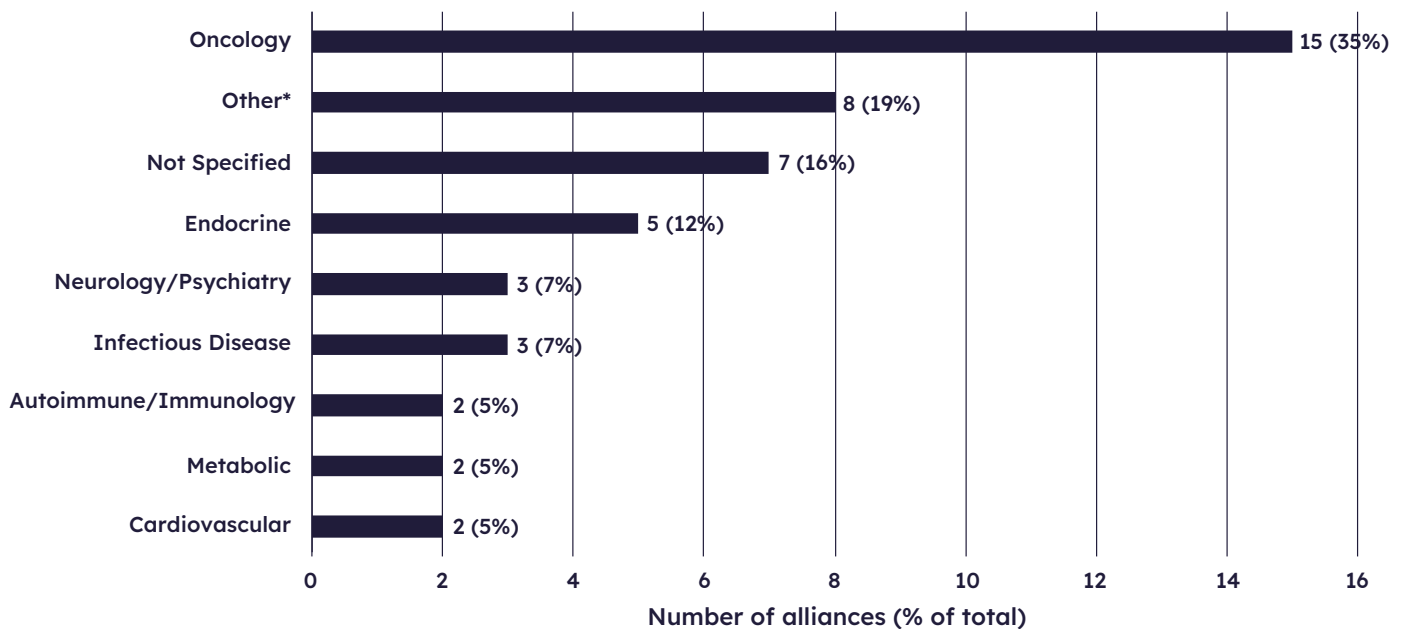
### Medtech Alliances

Medtech alliance deal volume for 2023 reached 43 transactions (split between 23 device and 20 in vitro diagnostics/research tools); of those, nine had disclosed values, together totaling \$969 million. The top device deal in terms of dollar value was Steris' purchase of Becton Dickinson's surgical instrumentation, laparoscopic instrumentation, and sterilization container assets for \$540 million. There were no diagnostics deals with disclosed values.

In terms of deal volume, medtech companies were most active in the oncology space, completing 15 partnerships (involving at least one asset in that therapy area), which made up 35% of the aggregate medtech alliance deal volume for the year [Figure 10]. All but

one of these agreements centered around diagnostics, with 12 deals in that set involving the development of companion diagnostics (CDx) for cancer. Foundation Medicine completed three partnerships to develop CDx: for Pierre Fabre's Braftovi (encorafenib) and Mektovi (binimetinib) for non-small cell lung cancer; Boehringer Ingelheim's MDM2-p53 antagonist BI 907828 for biliary tract cancer; and Karyopharm Therapeutics' Xpovio (selinexor) for endometrial cancer. The only cancer-related device agreement was Ion Beam Applications' (focused on particle accelerator technology) research collaboration with the University of Kansas Medical Center to evaluate skin and muscular normal tissue sparing after irradiation using proton FLASH technology.

**Figure 10.** 2023 medtech alliances across therapy area, by deal volume



Note: Deals involving more than one asset or therapy area may be counted multiple times; cumulative percentages will therefore exceed 100%.  
 \*Includes one deal apiece in each of the following categories: allergy, dermatology, gastroenterology, hematology, obstetrics/gynecology, orthopedics, respiratory, and urology.

Source: Biomedtracker, February 2024



# 2023 Deal-Making Roundup

## Medtech Acquisitions

During 2023, seven medtech M&As were announced that had a deal value of \$1 billion or more (four medical device and three in vitro diagnostics transactions). In the largest device M&A of the year, public musculoskeletal-focused companies Globus Medical and NuVasive combined in an all-stock transaction with an equity value of \$3.1 billion [Table 4]. Upon closing of the transaction, NuVasive owns 28% and Globus Medical owns 72% of the combined company, which will operate under a new name and trade under Globus's ticker and be led by Globus's CEO Dan Scavilla. The business combination brings together two well-regarded technology companies in the musculoskeletal industry, which have a shared vision focused on innovation as well as highly complementary

capabilities and spine and orthopedic portfolios, geographic footprints, and customer bases.

In the largest diagnostics M&A of the year, Danaher acquired Abcam for \$5.6 billion, which represents 13 times Abcam's FY2022 revenues of \$436 million. Abcam offers validated antibodies, reagents, biomarkers, and assays to address targets in biological pathways that advance drug discovery, life sciences research, and diagnostics. The company's three primary customer groups are academic institutions, research institutions, and biopharma/diagnostics companies. The acquisition follows Abcam's review of strategic alternatives, which kicked off in June 2023 and resulted in over 20 potential acquirers before the agreement with Danaher was reached.

**Table 4.** Top 10 2023 medtech M&As, by potential deal value

Date Announced	Date Closed	Acquirer	Acquired (Business)	Terms	Potential Deal Value (\$m)
Aug. 28	Dec. 6	Danaher	Abcam (research antibodies and other protein consumables for life sciences research and diagnostics)	\$24 per share in cash (a 7% premium); 13x sales	5,600
Feb. 9	Sep. 1	Globus Medical	NuVasive (procedurally integrated spinal surgery devices and technologies)	0.75 per Globus share, an implied stock price of \$57.72 (a 25% premium); Globus owns 72%/ NuVasive 28% of merged company; 2.58x sales	3,100
Oct. 17	Not yet closed	Thermo Fisher Scientific	Olink (provider of proteomics solutions)	\$26 in cash per American Depositary share (a 77% premium)	3,100
Mar. 31	Jul. 18	Sartorius	Polyplus (research reagent products and processes for biologic and cell and gene therapy production)	\$2.6bn in cash financed with two-year bridge loan facility	2,610

# 2023 Deal-Making Roundup

Oct. 31	Dec. 8	Ametek	Paragon Medical (single-use and consumable surgical instruments and implantable components for orthopedics, minimally invasive surgery, robotic surgery, and drug delivery)	\$1.9bn up-front in cash	1,900
Jul. 7	Aug. 31	Coloplast	Kerecis (biologics wound care)	\$1.2bn up-front in cash and an earn-out of up to \$100m dependent on financial performance in FY 2023/24; 14.12x sales	1,300
Dec. 15	Not yet closed	Carl Zeiss Meditec	Dutch Ophthalmic Research Center (products used by ophthalmic surgeons to treat a wide range of vision-threatening conditions)	\$1.1bn up-front in cash	1,078
Sep. 25	Jan. 3, 2024	Enovis	LimaCorporate (orthopedic implants focused on restoring motion)	\$798m up-front in cash at closing and \$110m in shares of Enovis common stock issued within 18 months after closing; 3.44x sales	908
Feb. 8	Apr. 27	Abbott	Cardiovascular Systems (minimally invasive devices to remove vascular plaques)	\$20 per share in cash (a 44% premium)	890
Sep. 19	Nov. 17	Boston Scientific	Relievant Medsystems (minimally invasive nerve ablation system to treat vertebrogenic pain)	\$850m up-front in cash and undisclosed earn-outs based on sales performance over the next three years; 12.14x sales	850

Source: Biomedtracker, February 2024

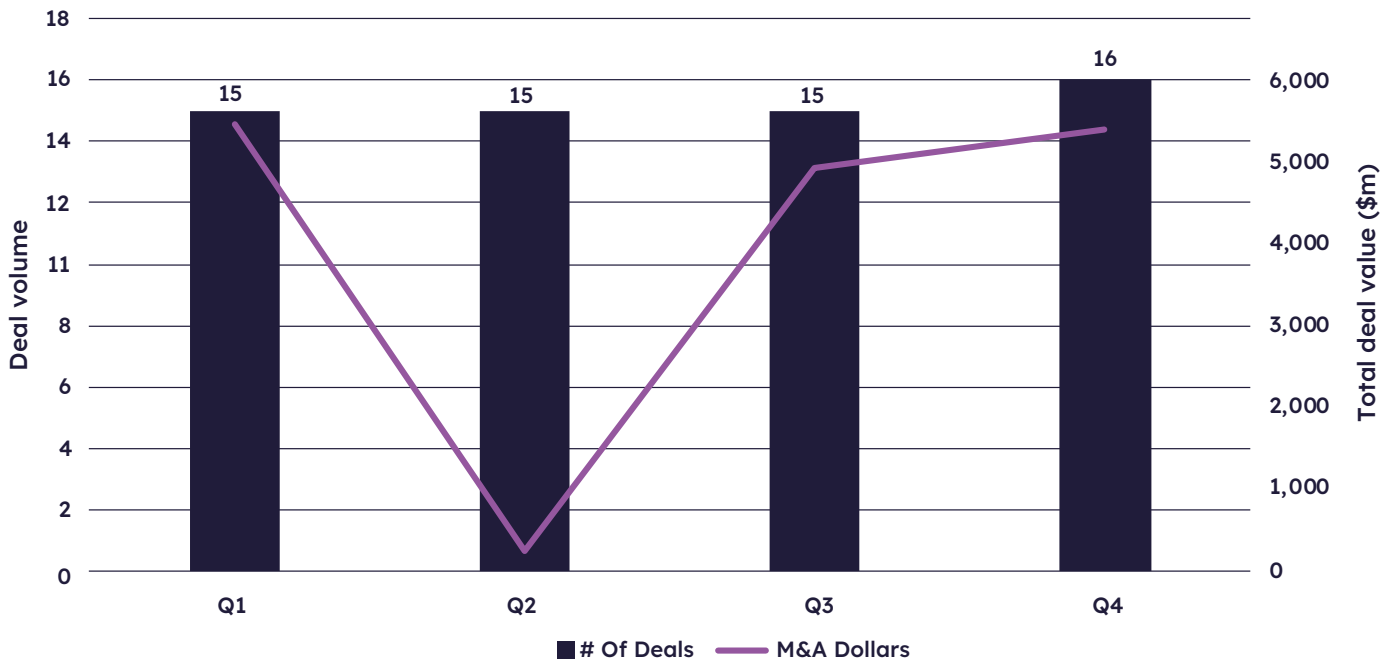
# 2023 Deal-Making Roundup

## Device M&A

Device merger and acquisition value for 2023 reached \$14.3 billion from 61 transactions, 28 of which had disclosed values [Figure 11]. This marked a decline from 2022's \$27 billion from 67 deals. Deal volume was consistent from quarter to quarter during 2023; Q4 led with 16

transactions. Q1, although the lowest quarter for deal volume, was the highest overall in deal value, with \$4.9 billion (most of that (63%) coming from the Globus/NuVasive deal). Q2 was the lowest in deal value, with \$228.7 million aggregate from 15 transactions.

Figure 11. 2023 device M&A activity, by quarter



Source: Biomedtracker, February 2024

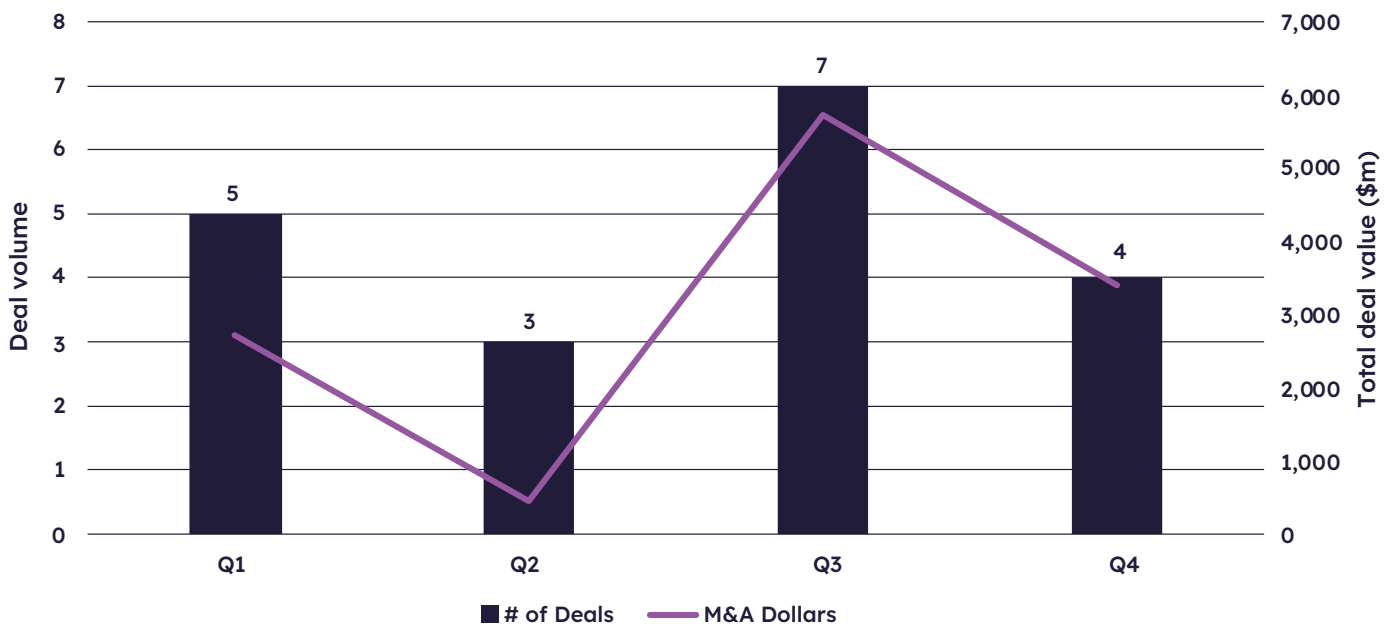
# 2023 Deal-Making Roundup

## Diagnostics M&A

M&A activity by diagnostics players for the full year totaled \$12.3 billion from 19 transactions, nine of which had disclosed values [Figure 12]. The deal value represented a 68% increase over 2022's \$7.3 billion deal value but a 24% drop from the 25 deals of 2022. Q2 2023's value was the lowest, with an aggregate \$450 million, but climbed to \$5.7 billion in Q3, the highest quarter of the year in both deal value and deal volume, with seven deals. Besides the Danaher/

Abcam \$5.6 billion deal that made up 98% of the Q3 dollars, the two other billion-dollar-plus transactions for life sciences players included Sartorius's acquisition of Polyplus (research reagent products and processes for biologic and cell and gene therapy production) for \$2.6 billion and Thermo Fisher Scientific's definitive agreement to buy Olink (technologies enabling high-throughput protein analysis for qPCR and next-generation sequencing readout systems) for \$3.1 billion.

**Figure 12.** 2023 diagnostics M&A activity, by quarter



Source: Biomedtracker, February 2024

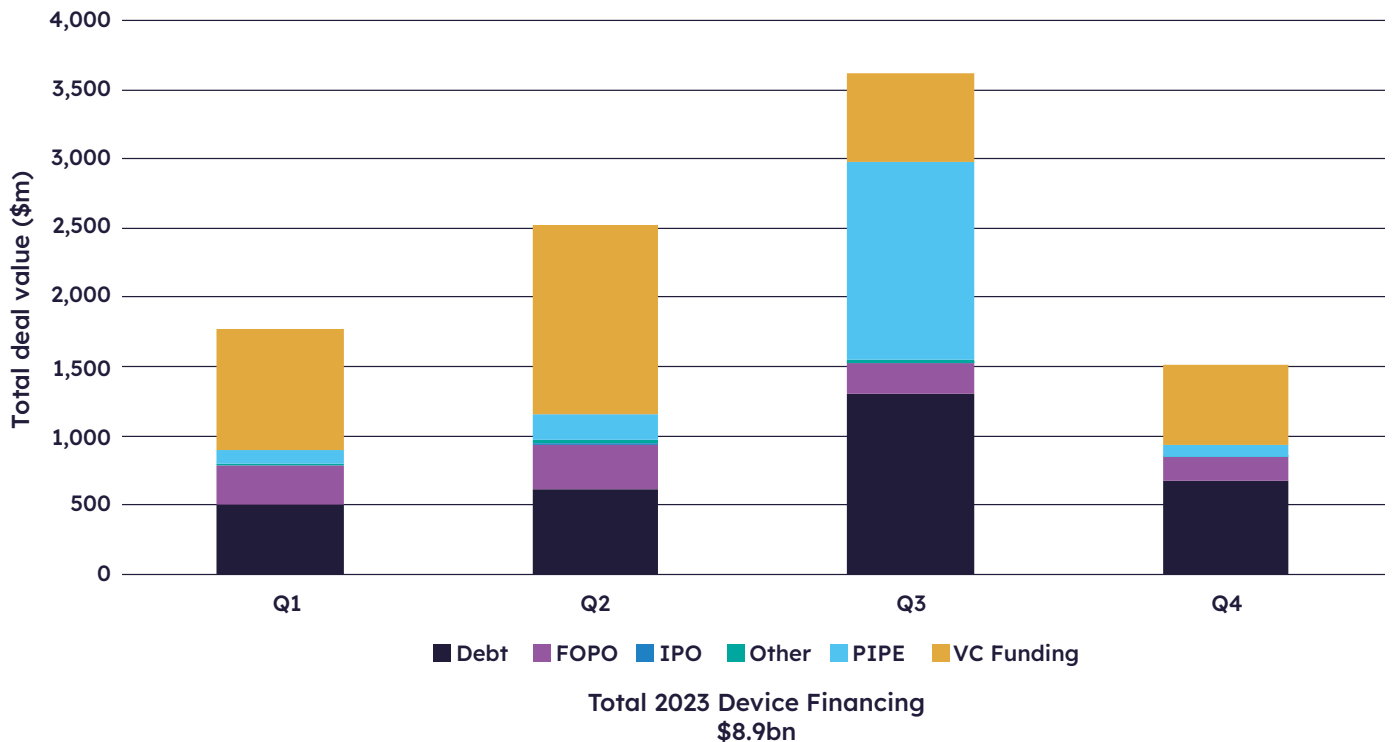
# 2023 Deal-Making Roundup

## Device Financing

For the full year, a total of \$8.9 billion was invested in device players from 227 deals [Figure 13]. This represents a decrease in both dollar value and deal volume from 2022's total of \$13 billion from 260 transactions. Q1 2023 opened with \$1.8 billion aggregate, followed by a steady increase in deal value quarter to quarter before falling to \$1.5 billion in Q4 for

45 deals, the lowest overall in both deal value and deal volume. The financing type making up the biggest proportion of the total 2023 device fundraising in both deal value (39%) and deal volume (51%) was venture capital financing, totaling \$3.5 billion from 116 transactions. This represents a decline from 2022, in which 172 VC rounds together totaled \$6.8 billion.

**Figure 13.** Total money invested in devices in 2023, by quarter and deal type



Source: Biomedtracker, February 2024

# 2023 Deal-Making Roundup

The round type contributing both the most dollars and the greatest deal volume was undisclosed rounds at \$915 million (from 34 deals), which accounted for 26% of all 2023 VC funding dollars (and 29% of all deal volume within this category) [Figure 14]. Raising the most in this category was Saluda Medical (closed-loop neuromodulation technologies to treat neurological disorders), which brought in \$150 million in an undisclosed late-stage equity

financing, also tied with Noah Medical (\$150 million Series B) as the second-largest round overall of the year. Two additional device firms raised rounds of \$100 million or more during 2023: HeartFlow (precision heart care) closed a \$215 million Series F round, the largest device financing of the year, and Beta Bionics (diabetes management) brought in \$100 million in Series D funding.

**Figure 14.** Total money invested in device venture rounds in 2023, by round number (\$m)



Source: Biomedtracker, February 2024

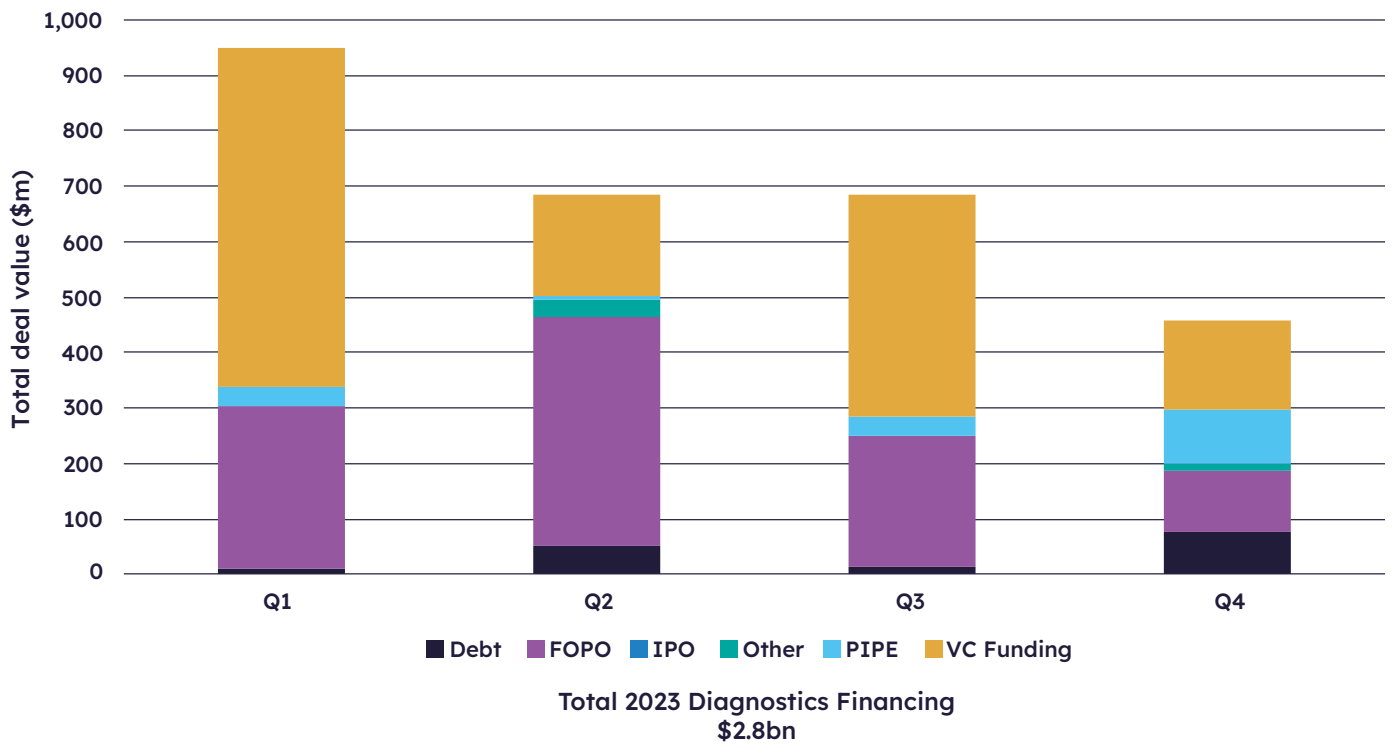
# 2023 Deal-Making Roundup

## Diagnostics Financing

For the full year 2023, diagnostics financing totaled \$2.8 billion from 73 transactions, representing a decline in both deal value and deal volume versus the \$3.9 billion from 96 deals during 2022. Q1 was the strongest in terms of total deal value at \$951 million in aggregate financing [Figure 15]. Q1 also had the greatest

deal volume with 21 deals overall. Deal value was the lowest in Q4 at \$459 million and tied with Q2 for the least number of deals, with 17 financings. The deal type accounting for both the highest percentage of dollars (49%) and deal volume (44%) was venture capital financing.

**Figure 15.** Total money invested in diagnostics in 2023, by quarter and deal type



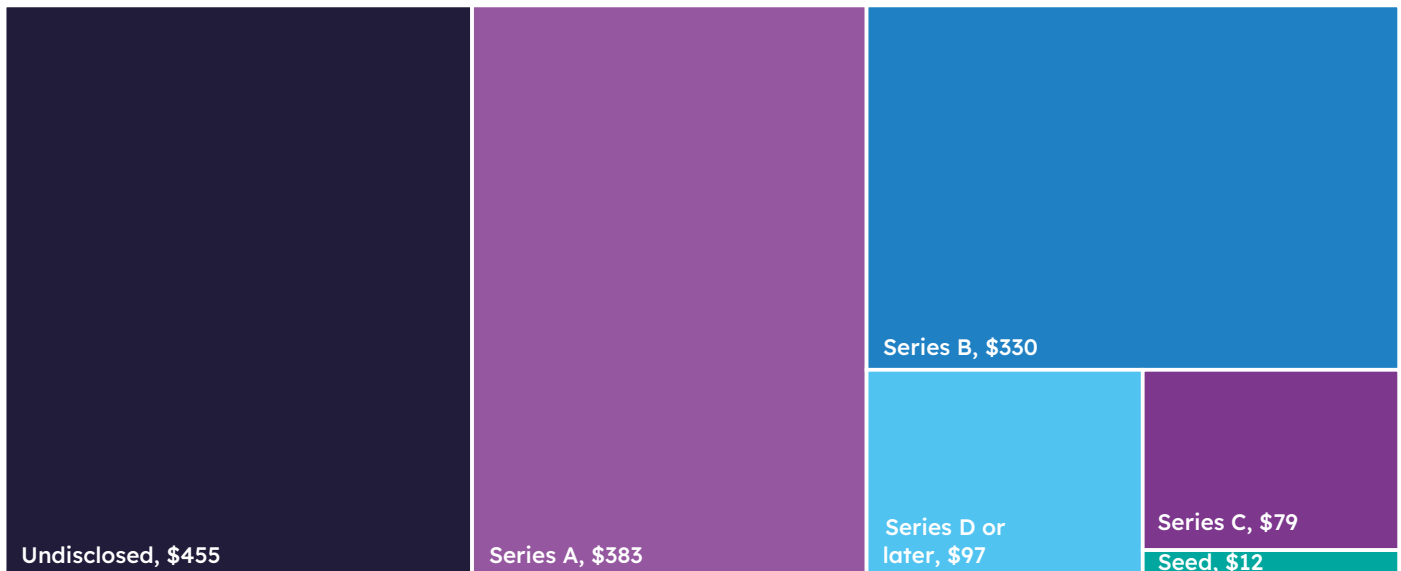
Source: Biomedtracker, February 2024

# 2023 Deal-Making Roundup

Venture rounds by diagnostics and research tools players totaled \$1.4 billion from 32 transactions [Figure 16] compared to \$2.4 billion from 59 deals in 2022, a dramatic decrease in both deal value and deal volume. Series A rounds made up most of the dollars (28%) across all VC funding, bringing in \$383 million from 15 deals, and were also the most numerous, accounting for 47% of the financing volume in this category. Artera (developing AI-based predictive and prognostic cancer

tests) raised the highest Series A in its \$90 million round. The largest VC financing overall was a \$400 million undisclosed debt raised by Caris Life Sciences (large-scale clinico-genomic database and cognitive computing). Harbinger Health (blood-based cancer screening platform), with a \$140 million Series B round, was the only other diagnostics firm to raise more than \$100 million in VC funding during 2023.

**Figure 16.** Total money invested in diagnostics venture rounds in 2023, by round number (\$m)



Source: Biomedtracker, February 2024



## 2023 Deal-Making Roundup

For 2023 overall, just three medtech companies completed IPOs, compared to 17 in 2022. Raising the most was Monogram Orthopaedics, which netted \$16 million through the sale of 2.4 million shares at \$7.25 each. Founded in 2016 as Monogram Arthroplasty, the company changed to its current name the following year. Monogram is developing orthopedic implants tailored to each patient's anatomy using 3D printing and precision robotics technology, coupled with advanced pre-operative imaging, to install them. The company is focused on producing and marketing robotic surgical equipment and related software, orthopedic implants, tissue ablation tools, navigation consumables, and other miscellaneous instrumentation necessary for reconstructive joint replacement procedures.

NeurAxis netted \$6.1 million in its initial public offering in August 2023. The company, which was founded as Innovative Health Solutions in 2011 before changing to its current name in

March 2022, is developing neuromodulation therapies to address chronic and debilitating conditions in children using its proprietary percutaneous electrical nerve field stimulation technology. Its IB-Stim is a non-surgical PENFS system intended for use in patients 11–18 years of age with functional abdominal pain associated with irritable bowel syndrome.

The third medtech company to complete an IPO this year was Taiwan-based Bonraybio, raising an undisclosed amount. The male infertility-focused diagnostics firm was founded in 2016 and is developing and manufacturing, under the LensHooke brand, semen quality analyzers and analysis systems and related software and consumables for use in performing diagnostic testing in infertility clinics. These systems use automated instruments incorporating cameras and software to analyze sperm parameters, including DNA fragmentation, motility, concentration, morphology, vitality, and leukocytes.

# Meet the Authors

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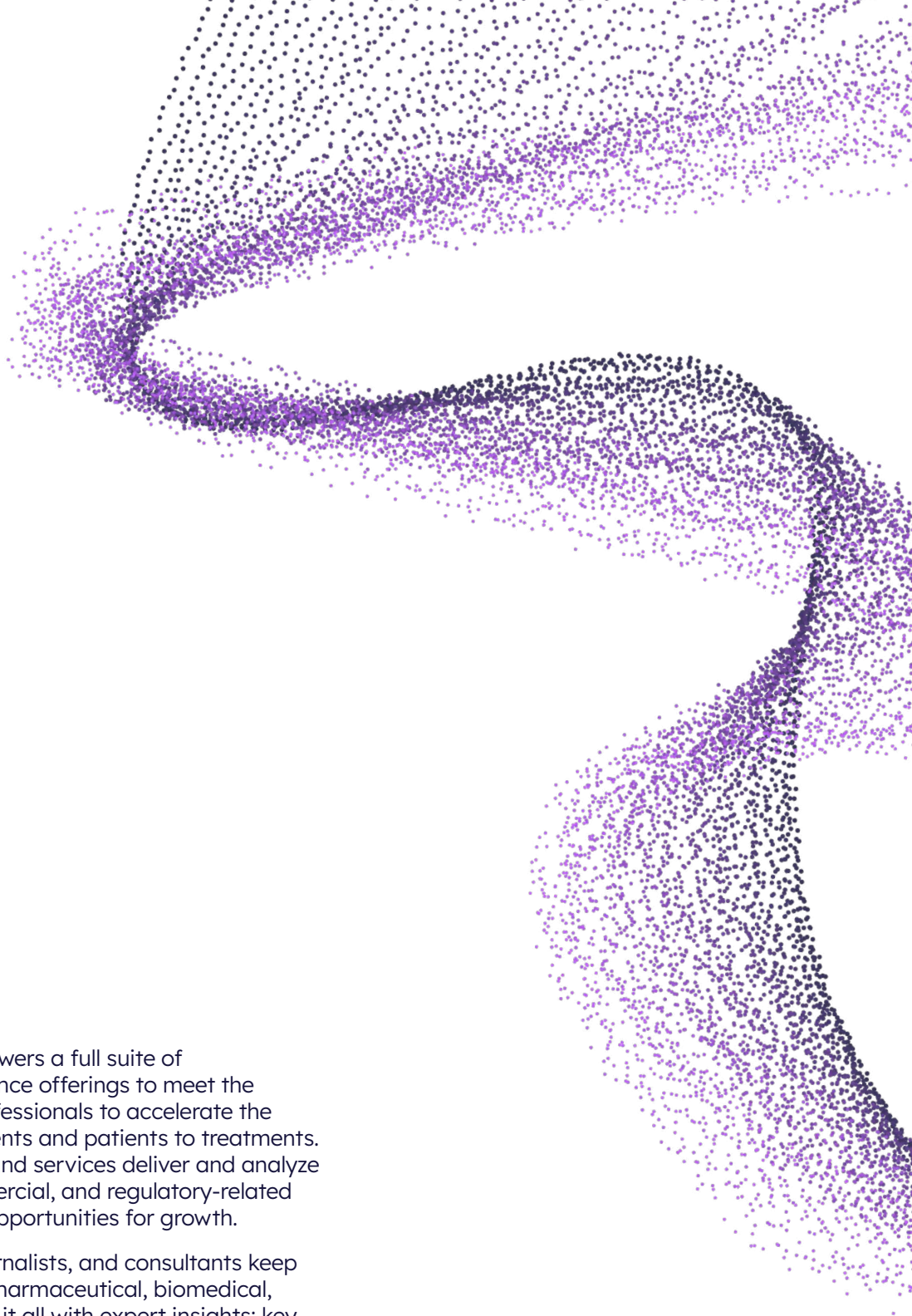
Maureen has over 25 years' experience analyzing transaction activity and trends in the biopharmaceutical, medical device, and in vitro diagnostics industries. She uses her industry knowledge to provide insightful coverage of mergers and acquisitions, alliances, and financings for Biomedtracker, and co-authors monthly and quarterly deal-making statistics columns for In Vivo. Maureen holds a Bachelor of Arts degree in English from Niagara University, and a Master of Library Science degree from Southern Connecticut State University.

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Deanna has been tracking deal-making activity since 2000. She is currently a Principal Analyst, Deals Intelligence for Biomedtracker. In her role she researches, analyzes, and writes summaries of alliances, mergers and acquisitions, and financings among global biopharma, medical device, and diagnostics companies. This intelligence helps clients monitor competition, find partners, value drug candidates, get informed deal structuring information, and access fundraising activities. Deanna authors a quarterly deal-making statistics article and other monthly trend pieces for In Vivo. She holds a Bachelor of Science degree from the University of Vermont.



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