The Brookline Brief Brookline Capital Markets

Life Sciences, Med. Tech. and Diagnostics Equity Capital Markets Update

January 2025

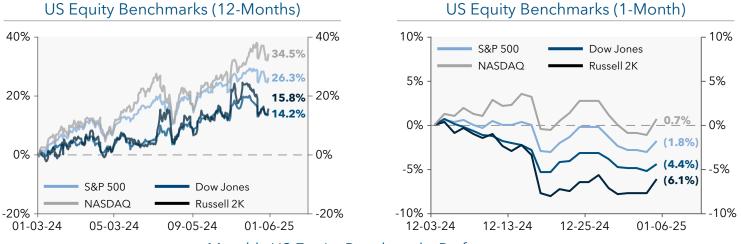


> Most major US equity benchmarks posted negative monthly returns during December.

> S&P 500, Dow Jones, and Russell 2000 each fell during December by -2.5% or worse - marking the second worst month of the year for the S&P 500 and the worst month of the year for the Dow Jones and Russell 2000. Notably, however, the NASDAQ climbed +0.5% during the month.

> Fed posture shifted in a hawkish direction following December's FOMC meeting.

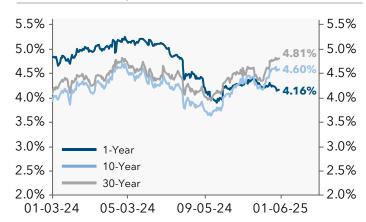
Although the Fed closed out 2024 with a 25-basis-point rate cut, Fed guidance (as indicated by its "dot plot" released following the meeting), signaled just 2 rate cuts during 2025 vs. 4 rate cuts as indicated in September. In response, the US 10-year treasury yield climbed from 4.39% to 4.57% to close out the year, its highest month-end reading since April 2024 (4.68%).



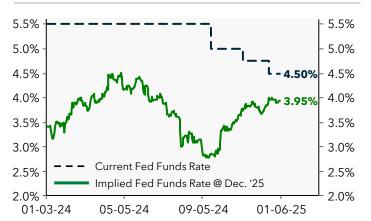
Monthly US Equity Benchmarks Performance

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Full Yr / YTD
S&P 500	2024	+1.6%	+5.2%	+3.1%	(4.2%)	+4.8%	+3.5%	+1.1%	+2.3%	+2.0%	(1.0%)	+5.7%	(2.5%)	+23.3%
30F 300	2025	+1.0%												+1.0%
NASDAQ	2024	+1.0%	+6.1%	+1.8%	(4.4%)	+6.9%	+6.0%	(0.8%)	+0.6%	+2.7%	(0.5%)	+6.2%	+0.5%	+28.6%
NAJDAQ	2025	+1.6%												+1.6%
Dow Jones	2024	+1.2%	+2.2%	+2.1%	(5.0%)	+2.3%	+1.1%	+4.4%	+1.8%	+1.8%	(1.3%)	+7.5%	(5.3%)	+12.9%
Dow Jones	2025	+0.4%												+0.4%
Russell 2K	2024	+1.2%	+2.2%	+2.1%	(5.0%)	+2.3%	+1.1%	+4.4%	+1.8%	+1.8%	(1.3%)	+7.5%	(5.3%)	+10.0%
	2025	+1.7%												+1.7%

Treasury Yields (Last 12-Months)



Fed Funds Futures (Last 12-Months)



Sources: FactSet, Bloomberg, Dealogic, Brookline Capital Markets Investment Banking Data, US Food & Drug Administration Data. Market data as of 4:00 PM on January 3, 2025, unless otherwise noted.

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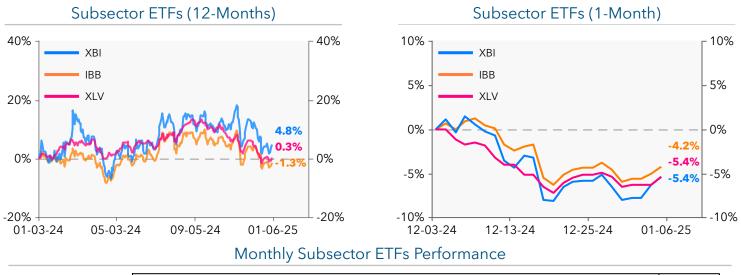
Recent Subsector-Specific Equity Market Trends

> Key healthcare- and biotech-sector tracking ETFs tumbled during December.

> The XBI, IBB, and XLV each fell during December, with the XBI and IBB posting their second worst monthly performances of the year and the XLV suffering its worst month of the year.

> Underwhelming Q4 2024 performances for the healthcare- and biotech-sectors washed out respectable CY 2024 returns.

The XBI, IBB, and XLV fell -8.8%, -2.7%, and -10.7%, respectively, during Q4 and dragged down full-year returns to +0.9%, -2.7%, and +0.9%, respectively. Moreover, 2024 marked the 4th consecutive year during which the XBI underperformed the S&P 500 and the 3rd year in the past 4 years during which the IBB and XLV underperformed the S&P 500.



		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Full Yr / YTD
ХВІ	2024	(2.1%)	+12.6%	(3.6%)	(10.8%)	+5.3%	+4.0%	+6.8%	+2.2%	(2.4%)	(1.8%)	+2.7%	(9.6%)	+0.9%
ЛЫ	2025	+2.6%												+2.6%
IBB	2024	(1.1%)	+1.8%	+0.3%	(7.5%)	+5.5%	+2.5%	+7.8%	+0.1%	(1.7%)	(3.6%)	+0.9%	(6.6%)	(2.7%)
IDD	2025	+1.5%												+1.5%
XLV	2024	+2.9%	+3.2%	+2.0%	(5.0%)	+2.4%	+1.4%	+2.7%	+5.1%	(2.0%)	(4.6%)	+0.4%	(6.7%)	+0.9%
ALV.	2025	+1.0%												+1.0%

Top-10 XBI Leaders (Dec. 2024)

Name	Ticker	% Chg.
Ironwood Pharmaceuticals	IRWD-US	+25.9%
Janux Therapeutics	JANX-US	+18.4%
Anavex Life Sciences	AVXL-US	+13.5%
ACADIA Pharmaceuticals	ACAD-US	+12.4%
Humacyte	HUMA-US	+11.7%
Scholar Rock Holding	SRRK-US	+8.3%
Neurocrine Biosciences	NBIX-US	+7.7%
Arcutis Biotherapeutics	ARQT-US	+6.8%
MiMedx Group	MDXG-US	+4.0%
PTC Therapeutics	PTCT-US	+2.9%

Bottom-10 XBI Laggards (Dec. 2024)

Name	Ticker	% Chg.
Keros Therapeutics	KROS-US	(72.6%)
Sangamo Therapeutics	SGMO-US	(54.9%)
ImmunityBio	IBRX-US	(49.2%)
AnaptysBio	ANAB-US	(47.0%)
Taysha Gene Therapies	TSHA-US	(46.6%)
Agios Pharmaceuticals	AGIO-US	(44.7%)
Olema Pharmaceuticals	OLMA-US	(42.4%)
Sana Biotechnology	SANA-US	(41.4%)
Y-mAbs Therapeutics	YMAB-US	(34.3%)
Scilex Holding	SCLX-US	(33.7%)

Sources: FactSet, Bloomberg, Dealogic, Brookline Capital Markets Investment Banking Data, US Food & Drug Administration Data. Market data as of 4:00 PM on January 3, 2025, unless otherwise noted.

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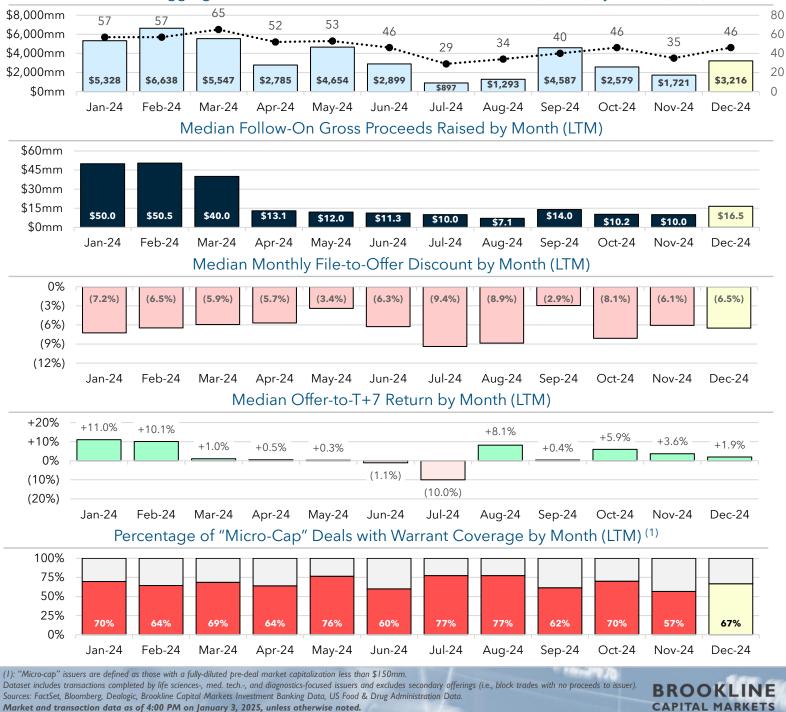
Recent Subsector Follow-On New Issue Trends

> Notwithstanding negative subsector performance, follow-on new issue activity increased during December.

> Life sciences-, med. tech.-, and diagnostics-focused issuers raised \$3.2bn in aggregate combined gross proceeds (prior to overallotments, where applicable) across 46 offerings during December – representing +87% and +31% upticks, respectively, compared to November 2024.

> Full-year follow-on new issue activity increased meaningfully in 2024 compared to 2023.

In aggregate, issuers raised \$42.1bn across 560 offerings in 2024 vs. \$28.9bn raised across 489 offerings in 2023. 2024's follow-on market figures represent the highest aggregate gross proceeds raised and deal volume since 2020 (\$50.1bn raised across 608 offerings in 2020).



Follow-On Aggregate Gross Proceeds Raised and Deal Volume (count) by Month (LTM)

Selected Recent Subsector Follow-On Offerings

January 2025

Company	Ticker Indication	Offer Date	Deal Type	Gross Proceeds ⁽¹⁾	Pre-Offer Mkt. Cap ⁽²⁾	File / Offer Disc. %	Offer / Current % Chg.
Cel-Sci	CVM Oncology (Leukocyte interleukin / SCCHN)	12-30-24	СМРО	\$5.0mm	\$39.8mm	(48.3%)	+39.0%
Kala Pharmaceuticals	KALA Ophthalmology (Wet AMD / TKI)	12-30-24	PIPE	\$10.8mm	\$33.2mm	(7.7%)	+23.1%
Traws Pharma ††	TRAW Infectious Diseaes (H5N1)	12-30-24	R/D	\$3.1mm	\$40.6mm	(62.0%)	+69.7%
180 Life Sciences ††	ATNF Rare Diseases (Rhett Syndrome / AAV9 gene therapy)	12-27-24	R/D	\$2.9mm	\$15.3mm	(14.8%)	(28.6%)
Vor Biopharma ††	VOR Endocrinology / T1D (humanized pAbs)	12-27-24	PIPE	\$55.6mm	\$57.5mm	+18.6%	+32.8%
TScan Therapeutics	TCRX Oncology (HA-1 TCR-T Therapies)	12-26-24	R/D	\$30.0mm	\$342.8mm	+37.5%	(23.4%)
Carmell ††	CTCX Bioaesthetics (skincare)	12-24-24	PIPE	\$1.9mm	\$4.7mm	+1.8%	+168.3%
OS Therapies †† [FF]	OSTX Oncology (Osteosarcoma)	12-24-24	PIPE	\$6.0mm	\$80.3mm	+5.8%	+6.5%
RAPT Therapeutics	RAPT Oncology (CDK4/6i)	12-23-24	PIPE	\$150.0mm	\$32.1mm	+3.0%	+96.5%
Vivos Therapeutics ††	VVOS Med. Tech. (mild-to-moderate OSA)	12-23-24	R/D	\$3.5mm	\$43.1mm	(0.9%)	(11.5%)
BioAtla ††	BCAB Oncology (Liposomal Grb2 antisense)	12-20-24	R/D	\$9.2mm	\$57.5mm	(20.0%)	(43.0%)
Monopar Tx	MNPR Oncology (radiopharmaceuticals)	12-20-24	R/D	\$40.0mm	\$127.5mm	at market	(3.4%)
Quoin Pharma †††	QNRX Dermatology (novel topicals)	12-20-24	S-1	\$6.8mm	\$3.9mm	(41.6%)	+55.6%
Marker Tx ††	MRKR Oncology (CDK2/CDK9)	12-19-24	PIPE	\$16.1mm	\$36.0mm	(20.6%)	+2.8%
Phio Pharma ††	PHIO Ophthalmology (STGD1 / RBP4 antagonist)	12-19-24	R/D	\$1.2mm	\$2.6mm	+5.0%	(25.2%)
Personalis	PSNL Pharma Services (Drug Discovery)	12-19-24	PIPE	\$50.0mm	\$251.5mm	at market	+86.5%
Inotiv	NOTV Pharma Services (CRO)	12-18-24	СМРО	\$25.5mm	\$144.4mm	(23.4%)	+18.4%
Reviva Pharma ††	RVPH CNS (Schizophrenia)	12-17-24	СМРО	\$18.0mm	\$84.1mm	(34.8%)	+26.7%
Trevi Therapeutics	TRVI Med. Tech (Root Canal Surgery)	12-16-24	R/D	\$50.0mm	\$463.3mm	(4.1%)	+14.8%
Anteris Tech *	AVR Med Tech. (Cardiology)	12-13-24	S-1	\$88.8mm	\$126.8mm	(11.5%)	(6.8%)

Key Notation:

• (S-1): fully marketed offering; (R/D): registered direct offering; (CMPO): confidentially marketed public offering (S-3/F-3); (PIPE): private investment in public equity.

• †, ††, and ††† denote transactions with <100% warrant coverage, 100% to 199% warrant coverage, and ≥200% warrant coverage, respectively.

• [FF] denotes an issuer's first follow-on offering post-IPO (or rev. merger). (**) denotes "NASDAQ/NYSE uplisting" (*) denotes dual listing / "US IPO."

(1) Excludes proceeds from overallotments, where applicable. Includes proceeds from concurrently announced transactions (e.g., concurrent PIPEs / CMPOs).

(2) Based on fully diluted shares outstanding immediately prior to offering.

Dataset includes transactions completed by life sciences, med. tech., and diagnostics-focused issuers and excludes secondary offerings (i.e., block trades with no proceeds to issuer). Sources: FactSet, Bloomberg, Dealogic, Brookline Capital Markets Investment Banking Data, US Food & Drug Administration Data. Market and transaction data as of 4:00 PM on January 3, 2025, unless otherwise noted.

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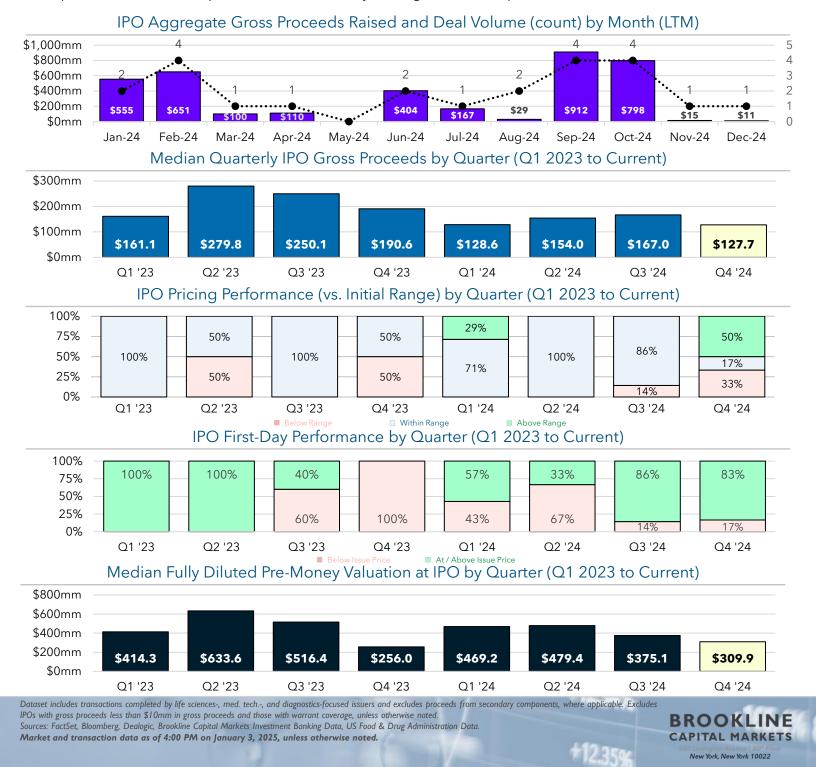
Recent Subsector IPO New Issue Trends

> December marked the second consecutive month of quiet IPO activity.

Jupiter Neurosciences (JUNS) was the only IPO to price in December and raised gross proceeds of \$11mm, essentially mirroring November's activity of a single relatively small IPO (IZTC, which raised gross proceeds of \$15mm). IPO activity during the final two months of the year represented a notable downtick vs. September and October (a period that featured 8 IPOs that raised \$1.7bn in combined aggregate gross proceeds and the first 2-month stretch with 4+ IPOs per month since October / November 2021).

> Publicly filed IPO pipeline remains modest entering 2025.

> Only one issuer (Beta Bionics) has publicly filed for an IPO since the start of December. Nevertheless, industry observers remain encouraged that IPO prospects remain bright in 2025 in light of recent positive aftermarket performance (5 of the past 6 IPOs are currently trading above issue price).



Selected Recent Subsector IPOs

January 2025

Company	Ticker	Indication	Offer Date	Gross Proceeds Raised ⁽¹⁾	Pre-Money Equity Valuation ⁽²⁾	Within Initial Range?	Disclosed Insider Part. (%)	% Change Offer / Current
Jupiter Neuro	JUNS	CNS (SIRT1)	12-03-24	\$11.0mm	\$156.8mm	Below		+112.5%
Invizyne Tech	IZTC	Synthetic Biomanufacturing (Enzymes)	11-12-24	\$15.0mm	\$50.0mm	Above		+82.3%
Septerna	SEPN	Endocrinology (PTH1R / Hypoparathyroidism)	10-25-24	\$288.0mm	\$509.3mm	Above		+31.6%
Ceribell	CBLL	Med. Tech. (CNS / EEG)	10-11-24	\$180.3mm	\$462.9mm	Above	13%	+42.9%
Camp4 Tx	CAMP	Metabolic Diseases (Urea Cycle Disorders / CPS1)	10-11-24	\$75.0mm	\$146.2mm	Below		(55.0%)
Upstream	UPB	Pulmonary Diseases (TSLP MAB)	10-11-24	\$255.0mm	\$693.2mm	I/R		+7.9%
BioAge Labs	BIOA	Metabolic Diseases (APJ agonist)	09-26-24	\$208.6mm	\$451.9mm	I/R	11%	(67.7%)
Bicara Therapeutics	BCAX	Oncology (EGFR / TGF-b mAb)	09-13-24	\$315.0mm	\$706.7mm	I/R	5%	(7.3%)
MBX Biosciences	MBX	Metabolic (PTH prodrug / GLP-1 antagonist)	09-13-24	\$163.2mm	\$375.1mm	I/R	5%	+16.2%
Zenas BioPharma	ZBIO	lmmunology (CD19 / Fcy mAb)	09-13-24	\$225.0mm	\$484.7mm	I/R		(42.2%)
Actuate Tx	ACTU	Oncology (GSK-38)	08-13-24	\$22.4mm	\$132.5mm	I/R	18%	+4.1%
OS Therapies	OSTX	Oncology (Osteosarcoma)	08-01-24	\$6.4mm	\$75.9mm	I/R	23%	+6.5%
Artiva Bio	ARTV	Immunology (NK Cell Therapies)	07-19-24	\$167.0mm	\$122.8mm	Below		(11.1%)
Alumis	ALMS	Immunology (TYK2)	06-28-24	\$250.0mm	\$634.1mm	I/R	16%	(47.2%)
Rapport Tx	RAPP	CNS (Receptor-Associated Proteins)	06-07-24	\$154.0mm	\$479.4mm	I/R	12%	+14.6%
Contineum Tx	CTNM	Neuroinflammatory (LPA1R antagonist)	04-05-24	\$110.0mm	\$350.0mm	I/R		(9.3%)
Boundless Bio	BOLD	Oncology (Oncogene amplified cancers / ecDNA)	03-28-24	\$100.0mm	\$295.8mm	I/R		(83.3%)
Metagenomi	MGX	Gene Therapy (Metagenomics platform)	02-09-24	\$93.8mm	\$469.2mm	I/R		(75.9%)
Kyverna Tx	KYTX	Autoimmune Diseases (CD19 CAR-T)	02-08-24	\$319.0mm	\$652.3mm	Above		(81.4%)
Alto Neuroscience	ANRO	CNS (MDD / PTSD)	02-02-24	\$128.6mm	\$327.8mm	I/R	8%	(71.2%)

Key Notation:

• (I / R): IPO priced within initial filing range

(1) Excludes proceeds from overallotments, where applicable. Includes proceeds from concurrently announced transactions (e.g., concurrent PIPEs).

(2) Based on fully diluted shares outstanding immediately prior to offering. Dataset includes transactions completed by life sciences-, med. tech.-, and diagnostics-focused issuers and excludes proceeds from secondary components, where applicable. Excludes IPOs with gross proceeds less than \$10mm in gross proceeds and those with warrant coverage, unless otherwise noted. Sources: FactSet, Bloomberg, Dealogic, Brookline Capital Markets Investment Banking Data, US Food & Drug Administration Data.

Market and transaction data as of 4:00 PM on January 3, 2025, unless otherwise noted.

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Brookline Capital Markets Information

Firm Overview

Brookline Capital Markets is a **premier healthcare-focused boutique investment bank** led by former executives of top Wall Street firms **focused on underwriting and growth capital for private and public companies** with a full suite of advisory capabilities



<u>Leadership With Decades</u> of Industry Experience

Brookline prides itself on taking an advisor's mentality to the complexities facing life sciences, medical technology, and diagnostics companies in the capital markets



Unique Distribution <u>Network</u>

We have a strong network of difficult-to-reach fundamental investors including Family Offices, Ultra High Net Worth Individuals, and Industry Specialists

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Selected Recently Completed Transactions and Engagements

January 2025

Biopharmaceuticals Company	Biopharmaceuticals Company	Biopharmaceuticals Company	Specialty Pharma Company	CARMELL \$1,850,000 PIPE Exclusive Placement	S THERAPIES \$6,000,000 PIPE Exclusive Placement	MAXONA PHARMACEUTICALS \$6,950,000 Series B Convertible Preferred Stock Exclusive Placement
Ongoing Engagement Capital Markets Advisor	Ongoing Engagement Capital Markets Advisor	Ongoing Engagement Capital Markets Advisor	Ongoing Engagement Capital Markets Advisor	Agent December 2024	Agent December 2024	Agent December 2024
	MARKER Therapeutics	Monopar Therapeutics		FORTE BIOSCIENCES, INC	reat messenger	
Completed Engagement Capital Markets Advisor December 2024	\$16,100,000 PIPE Co-Placement Agent December 2024	Completed Engagement Capital Markets Advisor December 2024	\$3,000,000 Registered Direct Co-Placement Agent November 2024	\$53,000,000 PIPE Co-Placement Agent November 2024	\$45,000,000 Merger Capital Markets Advisor November 2024	\$496,300,000 Merger Financial Advisor November 2024
	MEDICUS	CoreWeave	Crusoe	THERAPEUTICS	Beyond Air' The Magic of Breathing	🔵 eyenovia
\$7,000,000 PIPE Exclusive Placement Agent November 2024	\$4,000,000 US IPO Co-Manager November 2024	\$2,600,000 Secondary Sale Introducing Agent November 2024	\$3,500,000 Secondary Sale Introducing Agent November 2024	\$1,275,000 PIPE Exclusive Placement Agent October 2024	\$20,600,000 PIPE Co-Placement Agent September 2024	\$4,000,000 Registered Direct Co-Placement Agent September 2024
gally bio		iBio	S THERAPIES	^S IMUNON	🚫 eyenovia	VSee D Digital Health Acquisition
Completed Engagement Capital Markets Advisor September 2024	Completed Engagement Capital Markets Advisor August 2024	Completed Engagement Capital Markets Advisor August 2024	\$6,400,000 IPO Sole Bookrunner July 2024	\$10,000,000 Registered Direct Co-Placement Agent July 2024	\$5,000,000 Registered Direct Co-Placement Agent June 2024	\$110,000,000 Merger Financial Advisor June 2024
CYCLACEL	ANTHROP\C		(Aquestive	Rally bio	ANTHROP\C	CARMELL
\$8,000,000 PIPE Financial Advisor April 2024	Undisclosed Secondary Sale Introducing Agent April 2024	Completed Engagement Capital Markets Advisor April 2024	Completed Engagement Capital Markets Advisor April 2024	\$6,600,000 PIPE Financial Advisor April 2024	Undisclosed Secondary Sale Introducing Agent April 2024	\$3,000,000 PIPE Exclusive Placement Agent April 2024
	(Aquestive	DT CLOUD ACQUISITION CORPORATION	^S IMUNON		Scientific Industries, Inc.	Difference Interapeutics
\$50,000,000 PIPE Financial Advisor March 2024	\$75,000,000 Follow-On Financial Advisor March 2024	\$69,000,000 IPO Sole Bookrunner February 2024	Completed Engagement Capital Markets Advisor January 2024	\$1,100,000 Series A Placement Agent January 2024	\$7,000,000 PIPE Exclusive Placement Agent January 2024	\$80,000,000 PIPE Financial Advisor January 2024
IRON HORSE	iBio	CoreWeave		🖄 LungTherapeutics		CIRCULOGENE THERANDSTICS
\$69,000,000 IPO Co-Manager December 2023	\$4,500,000 Follow-On Co-Manager December 2023	\$6,750,000 Secondary Sale Introducing Agent December 2023	\$60,000,000 IPO Co-Manager November 2023	\$18,500,000 PIPE Co-Placement Agent October 2023	Completed Engagement Capital Markets Advisor October 2023	\$12,670,000 Secured Note Sole Placement Agent October 2023

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