

YEAR-END 2023

The National Life Science Market Overview

NEWMARK



Market Observations

In one of the strongest years on record, the FDA approved 55 new drugs in 2023. Cautious optimism has also returned to the public markets.

Venture capital funding for life science companies decreased by 30.0% in 2023, although annual totals are in line with pre-pandemic volumes.

Life science job growth has slowed. The roughly 30,000 jobs added through November 2023 is well below recent historic gains.

Hiring remains cautious among life science companies. Job openings in the sector declined to a three-year low at the end of 2023 as a result.



Demand is in line with pre-pandemic levels and leasing velocity has improved, but limited funding has sidelined many tenants.

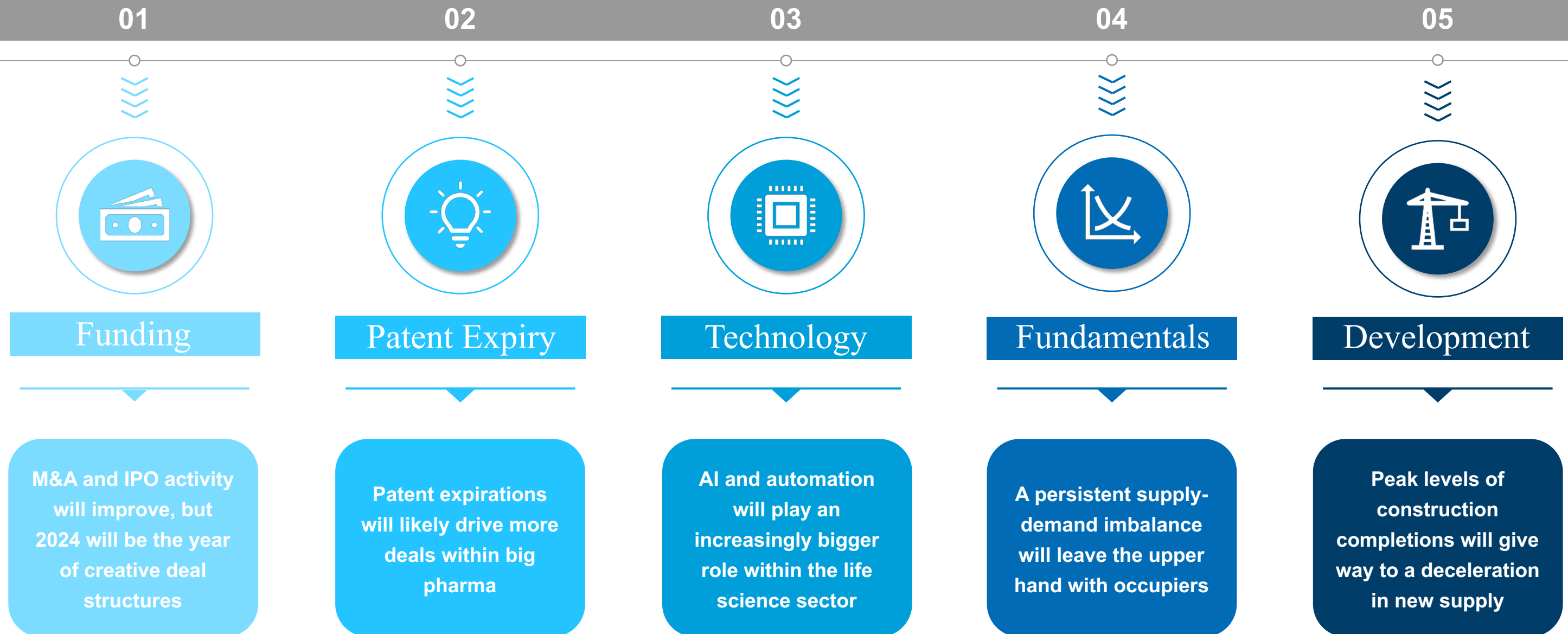
Availabilities are at all-time highs in most markets. Fundamentals are faring better in those with limited speculative construction.

Despite nearly doubling in five years, asking rents are correcting materially in Boston and the Bay Area.

A record 3.1 million SF of purpose-built laboratory product delivered in the top three markets in the fourth quarter of 2023.

Dispositions and recapitalizations have been focused on key Boston submarkets, including the Seaport and Kendall Square.

2024 Life Science Trends to Watch



Continued headwinds in the life science sector will not derail long-term growth patterns fueled by continuous research and development and technological advances aimed at addressing the healthcare needs of an aging population, developing new drug therapies and contributing to public health initiatives.

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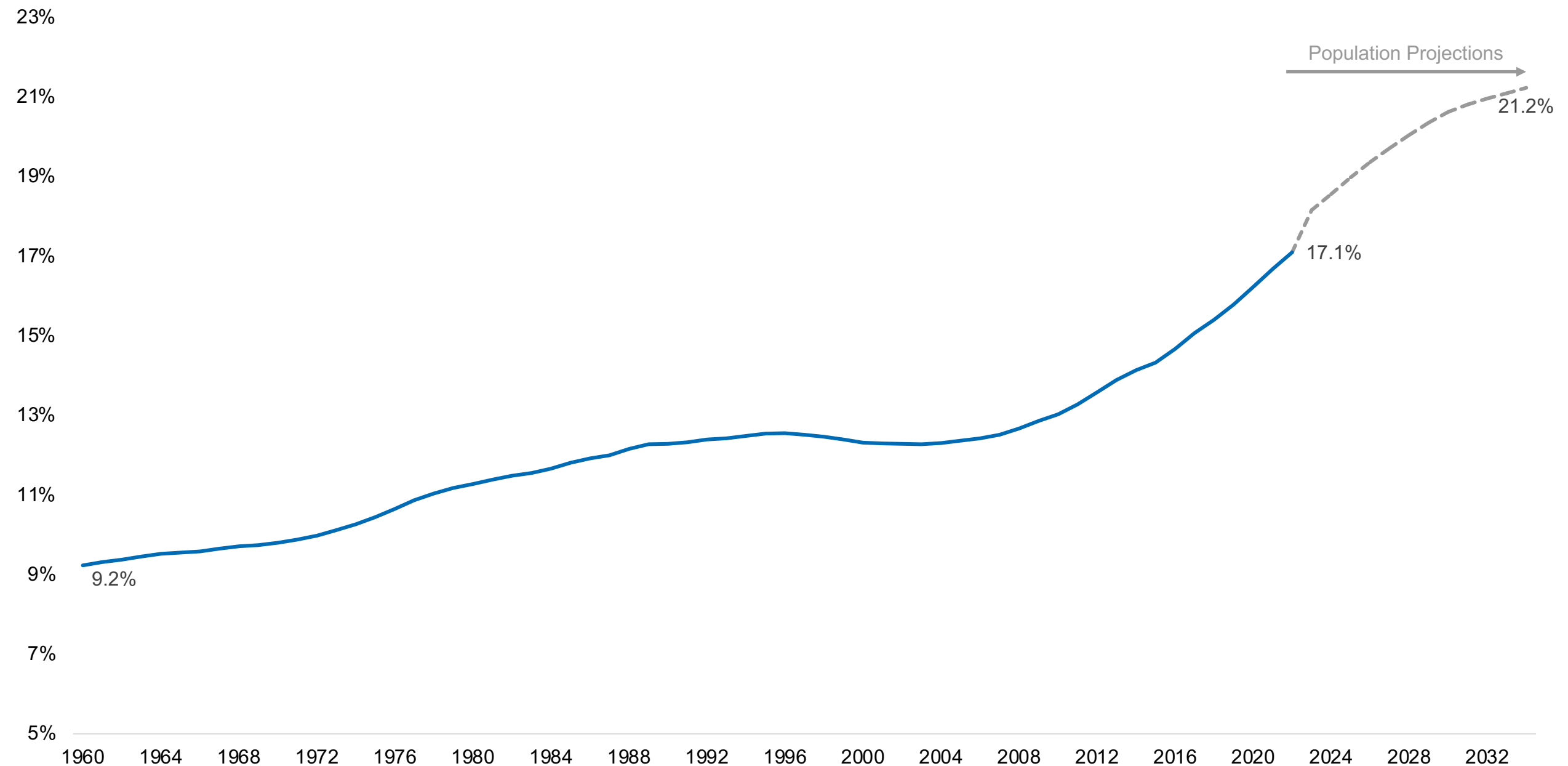
Demand Drivers



The Graying of America: U.S. Population is Aging

As of 2022, the percentage of U.S. residents aged 65 and older rose to 17.1%. Much of this growth can be attributed to the aging Baby Boomers, which has historically been the nation's largest generation. Population projections point to accelerated growth among this age cohort. This aging demographic will remain a driving force behind the growing emphasis on healthcare and life sciences.

Percent of U.S. Population Aged 65 and Above

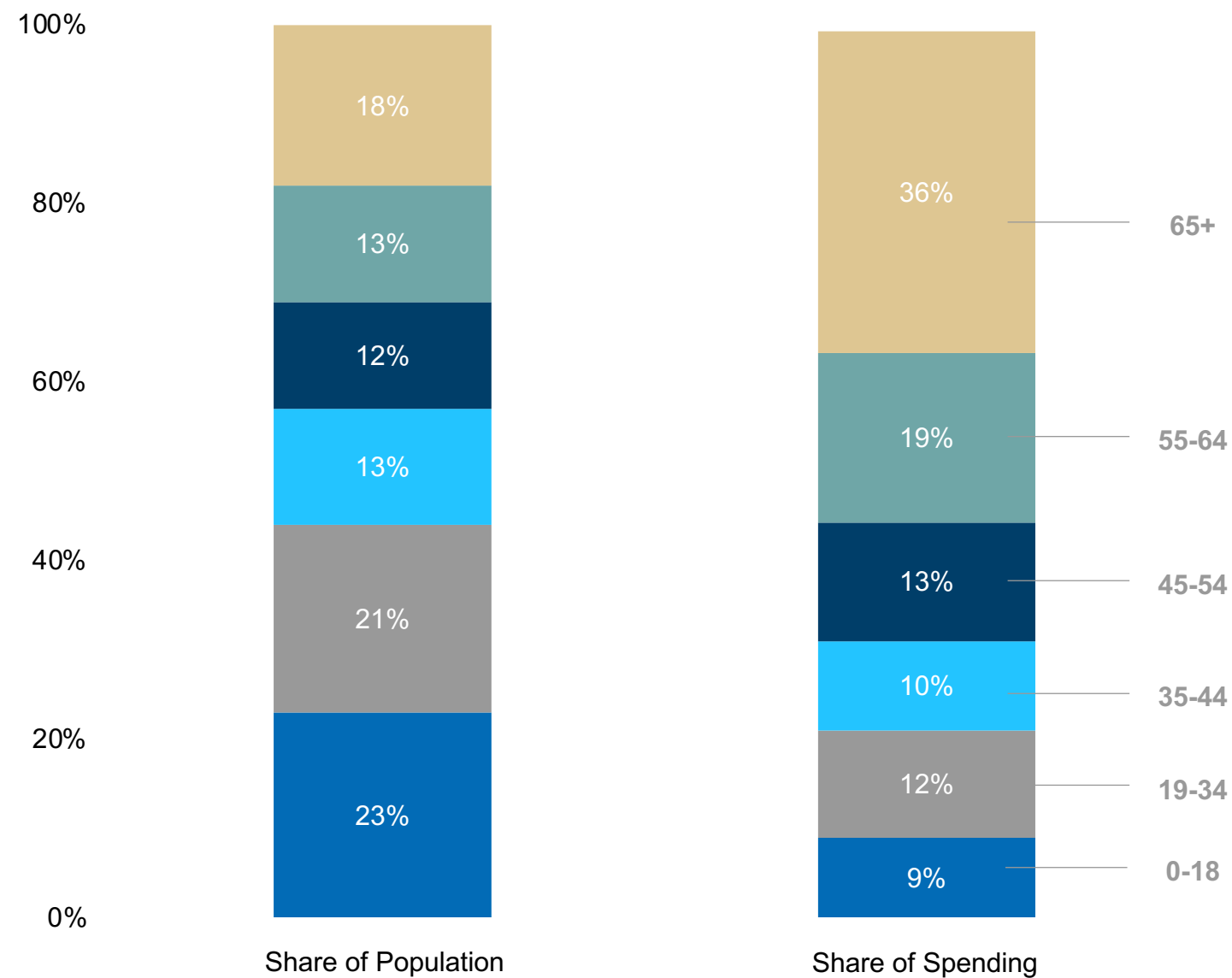


Source: The United Nations Population Division's World Population Prospects, JobsEQ, Newmark Research

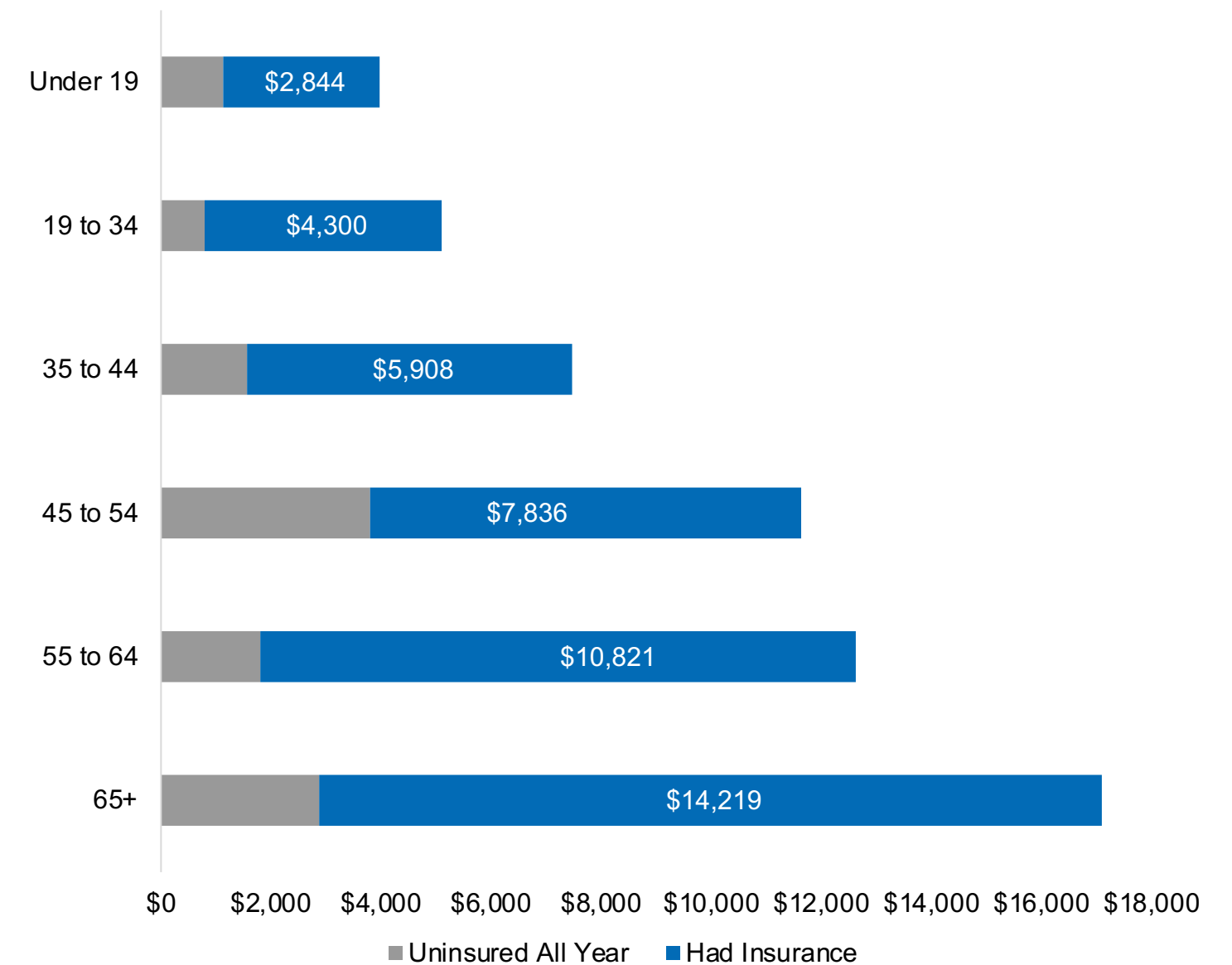
The Price of Aging: Older Cohorts Maintain Higher Healthcare Costs

Not surprisingly, those 65 years and older account for the greatest share of total healthcare spending. On a per-capita basis, the oldest insured age cohort spends 31.4% more than those aged 55 to 64 years old. As the U.S. population continues to age, healthcare spending will become increasingly more impactful, which bodes well for the future of the life science sector.

Share of Total Population and Total Health Spending by Age Group, 2021



Average Total Health Spending by Insurance Status, 2021

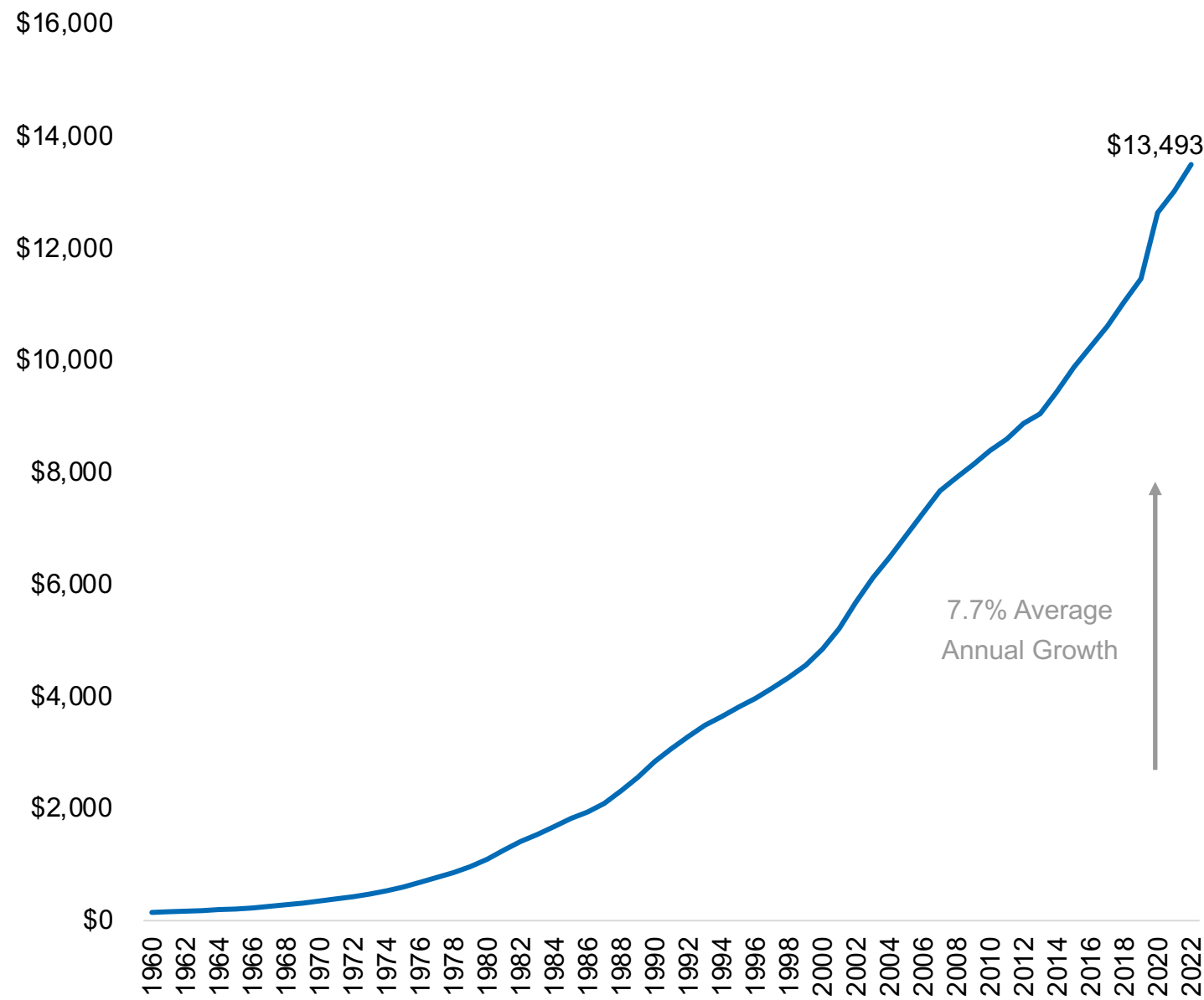


Source: KFF Analysis of Medical Expenditure Panel Survey 2021 data, Newmark Research

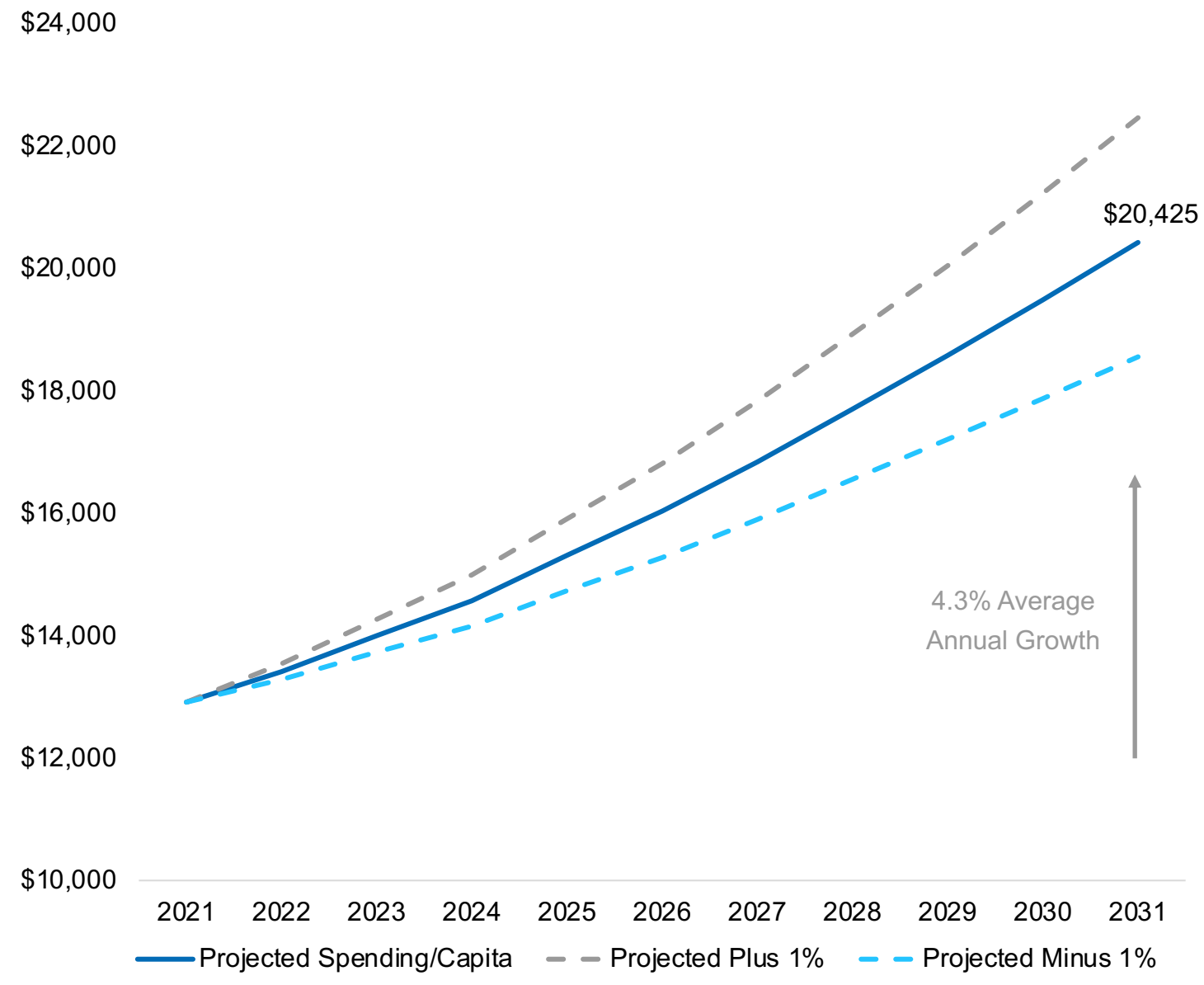
Healthcare Spending Per Capita Has Reached a 60-Year High and is Rising

As the population ages, a greater emphasis on healthcare will help drive life science demand. Healthcare spending has increased an average of 7.7% annually since 1960, with inflation driving more recent trends. Per-capita spending in the base case scenario is projected to increase by roughly 58.0% by 2031 or 4.3% per year. Alternatively, an additional 1.0% per year in healthcare spending per capita will result in an overall increase of 73.9% through 2031. Given historical trends, projected spending could be higher than expected.

U.S. Per Capita Health Expenditures (All Spending Types by All Sources)



Scenarios of Projected Annual Change in U.S. Per Capita Health Spending

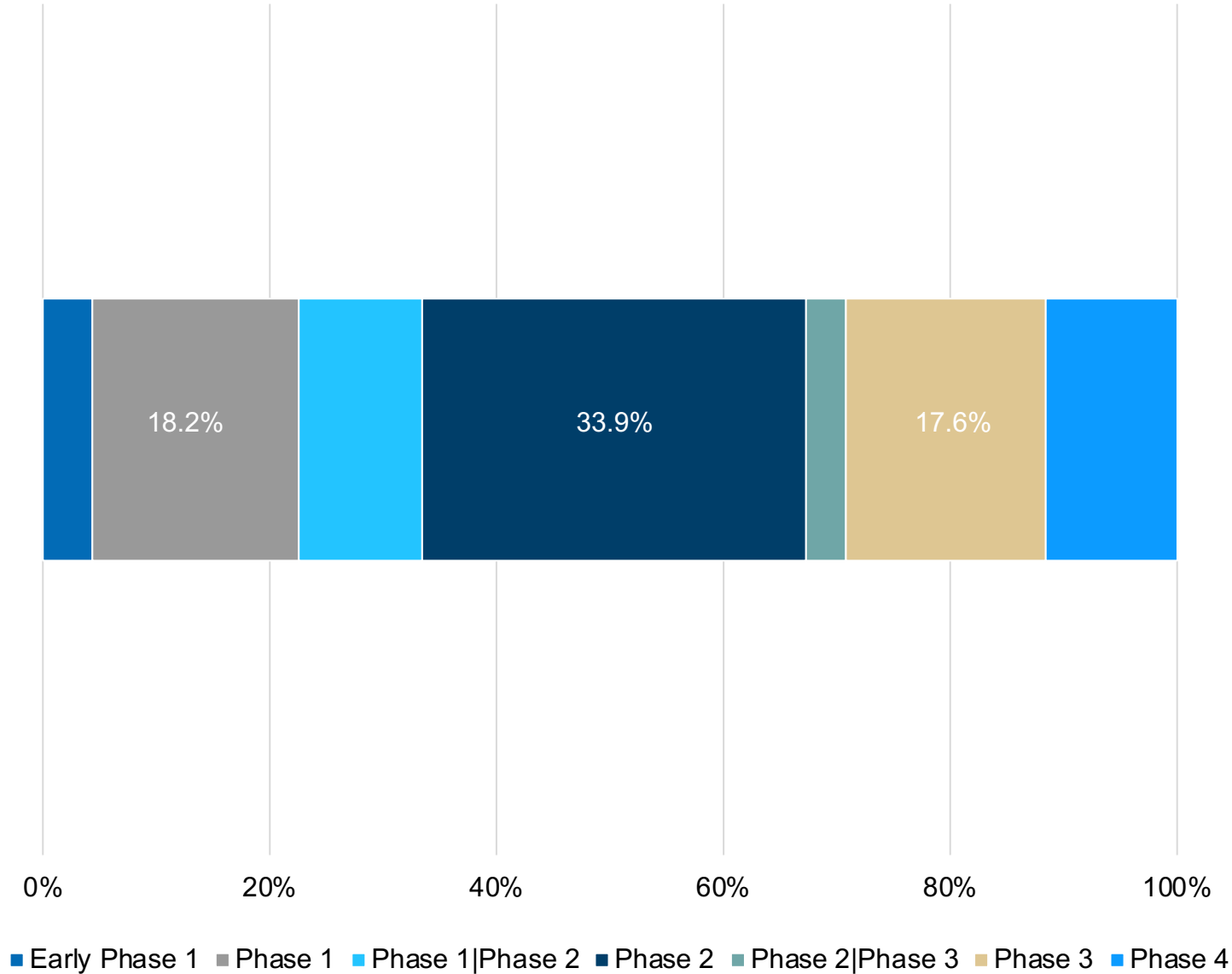


Source: KFF Analysis of Medical Expenditure Panel Survey 2022 data, KFF Analysis of NHEA, National Health Spending Explorer, Newmark Research

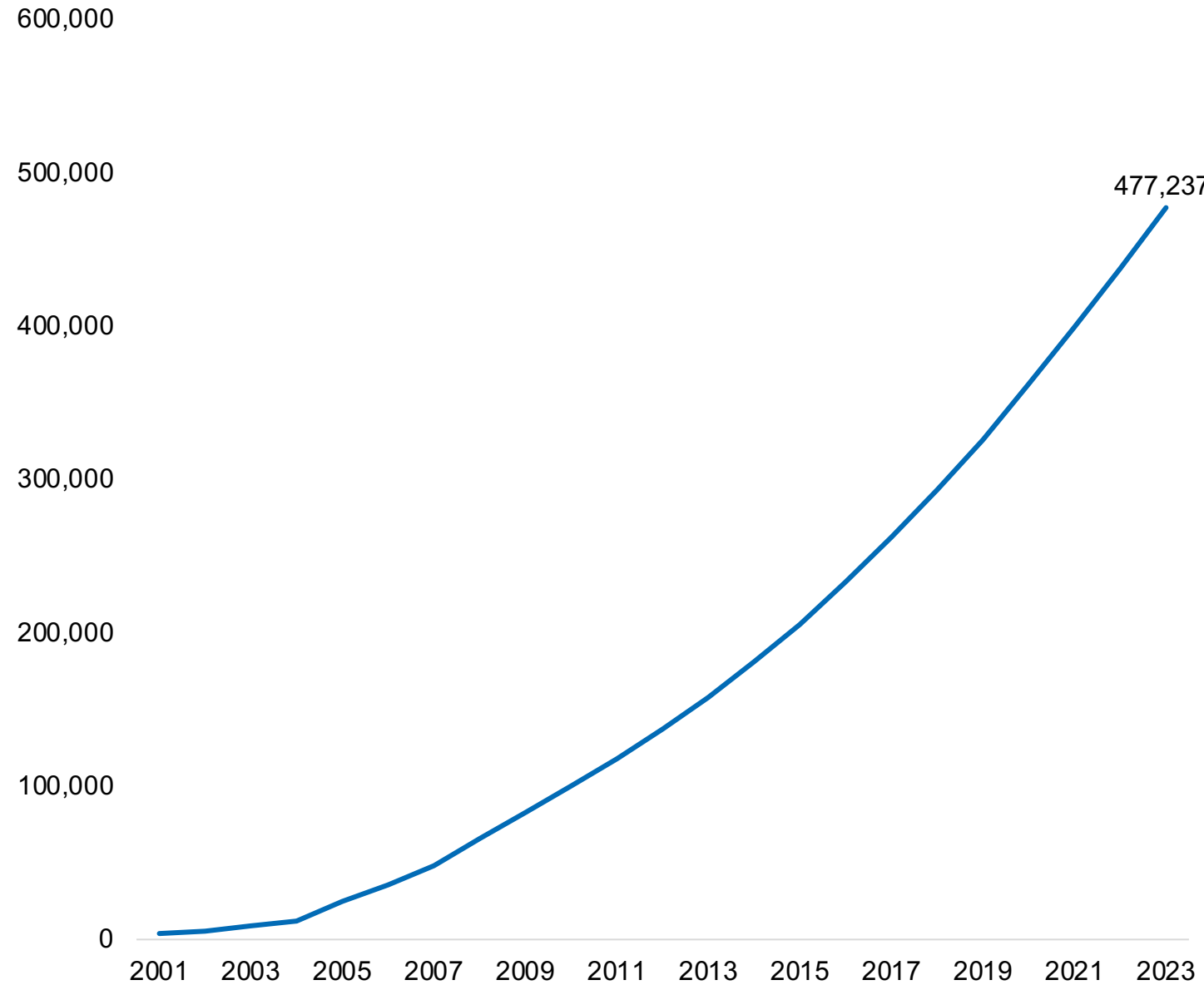
Growth in Active Clinical Trials Supports Future Lab Demand

Over the last 20+ years, U.S. clinical trials have grown exponentially; the number of registered studies reached an all-time high in 2023. Life science companies with drugs in any phase of trial could experience greater space needs, but later-stage studies tend to be larger. Clinical trials receive funding from several sources, with private investment and the National Institutes of Health representing major contributors.

Clinical Trials by Phase



Number of Registered Clinical Studies



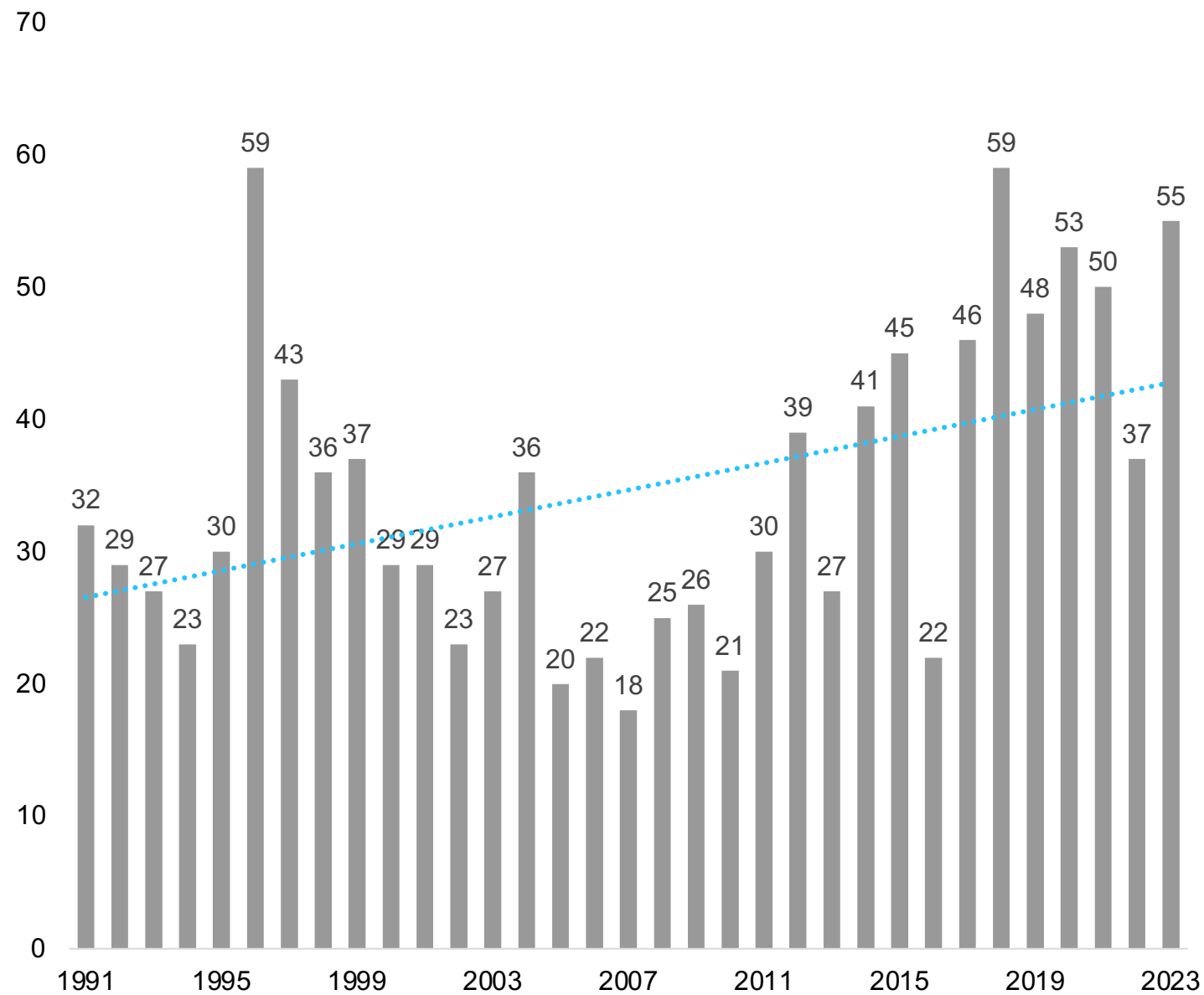
Source: ClinicalTrials.gov, Newmark Research

Note: Includes interventional clinical trials with a recruitment status of not yet recruiting, recruiting, enrolling by invitation, and active (not recruiting).

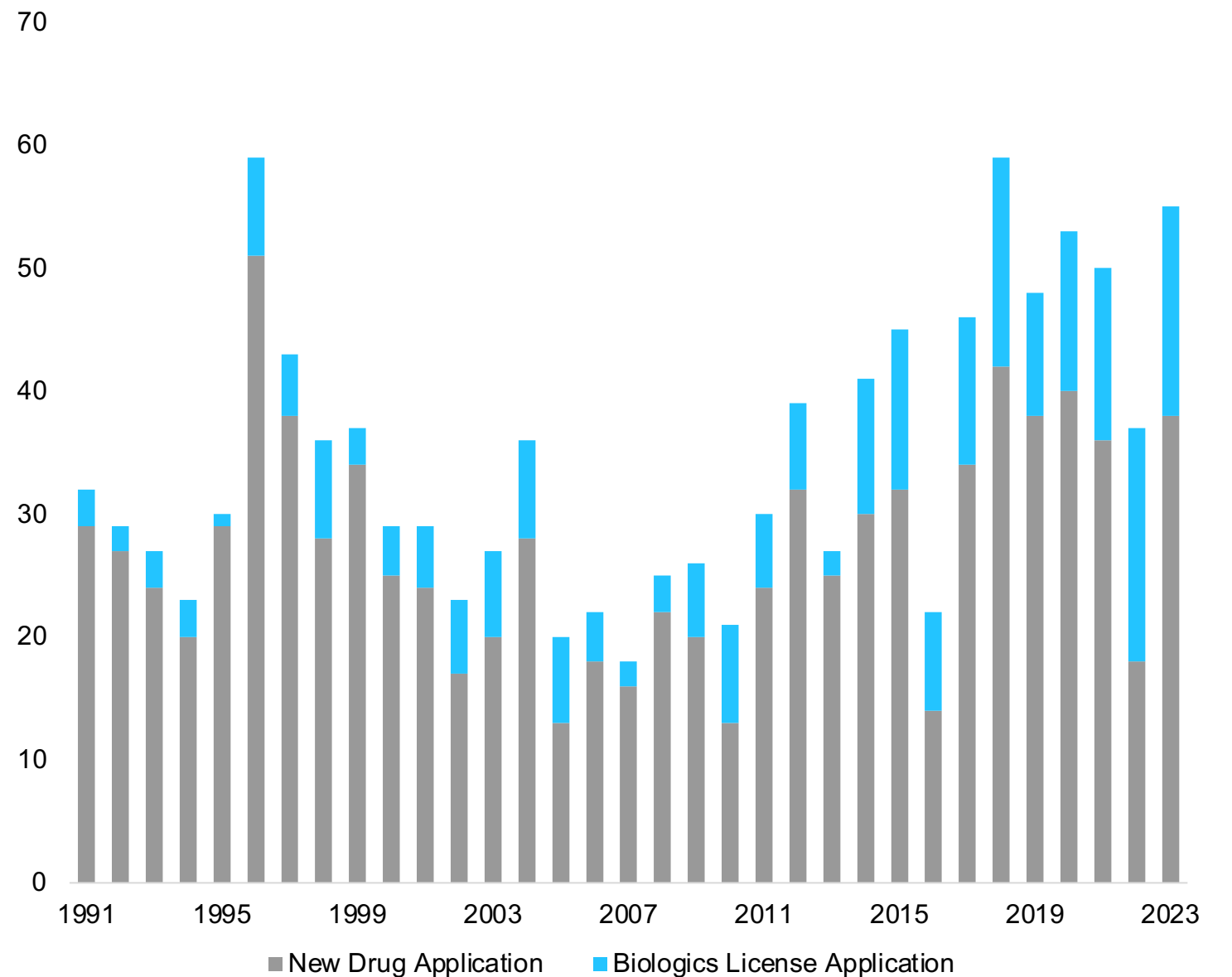
A Rebound in FDA Approvals Could Spur More Biotech Investment

The 55 novel drugs approved by the FDA in 2023 represent one of the highest years on record. As new drugs and treatments move through the pipeline, biotech companies will ultimately need more research and development and manufacturing space. According to PhRMA, only 12.0% of new molecular entities that enter clinical trials ultimately receive FDA approval.

FDA Annual New Drug Approvals



FDA Annual New Drug Approval by Application Type

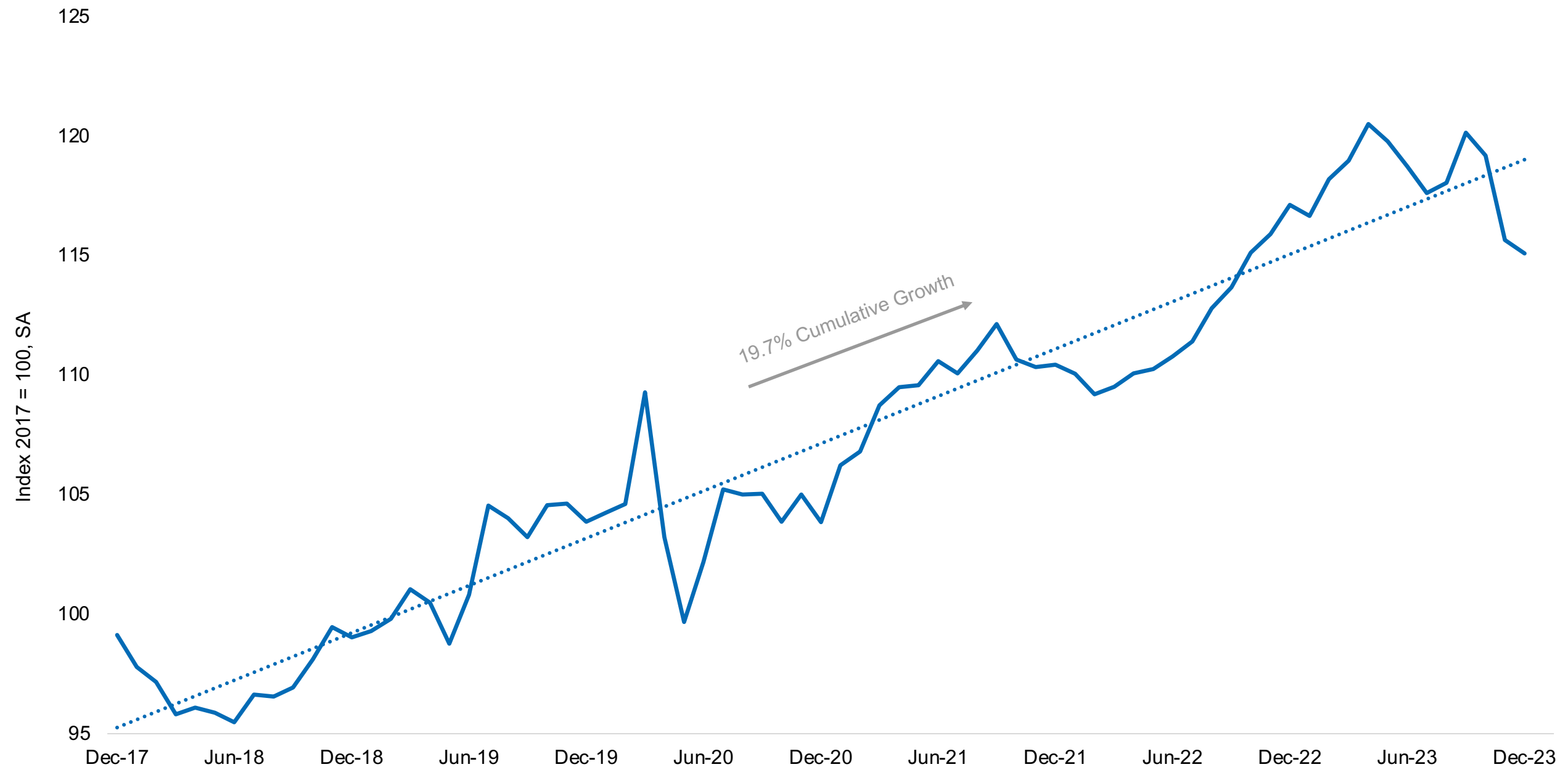


Source: Congressional Budget Office, FDA, Healthpeak Properties, Newmark Research

Pharmaceutical Manufacturing Production Is off from the Peak

The industrial production of pharmaceuticals and medicine, which measures the real output of U.S.-based establishments, reached a five-year peak in early 2023. Having ended the year slightly below that peak, tumult in the life science sector is impacting biomanufacturing as well. However, recent federal investments in this space, with a focus on onshoring and nearshoring advanced manufacturing, bode well for future growth.

Industrial Production: Manufacturing: Non-Durable Goods: Pharmaceutical and Medicine

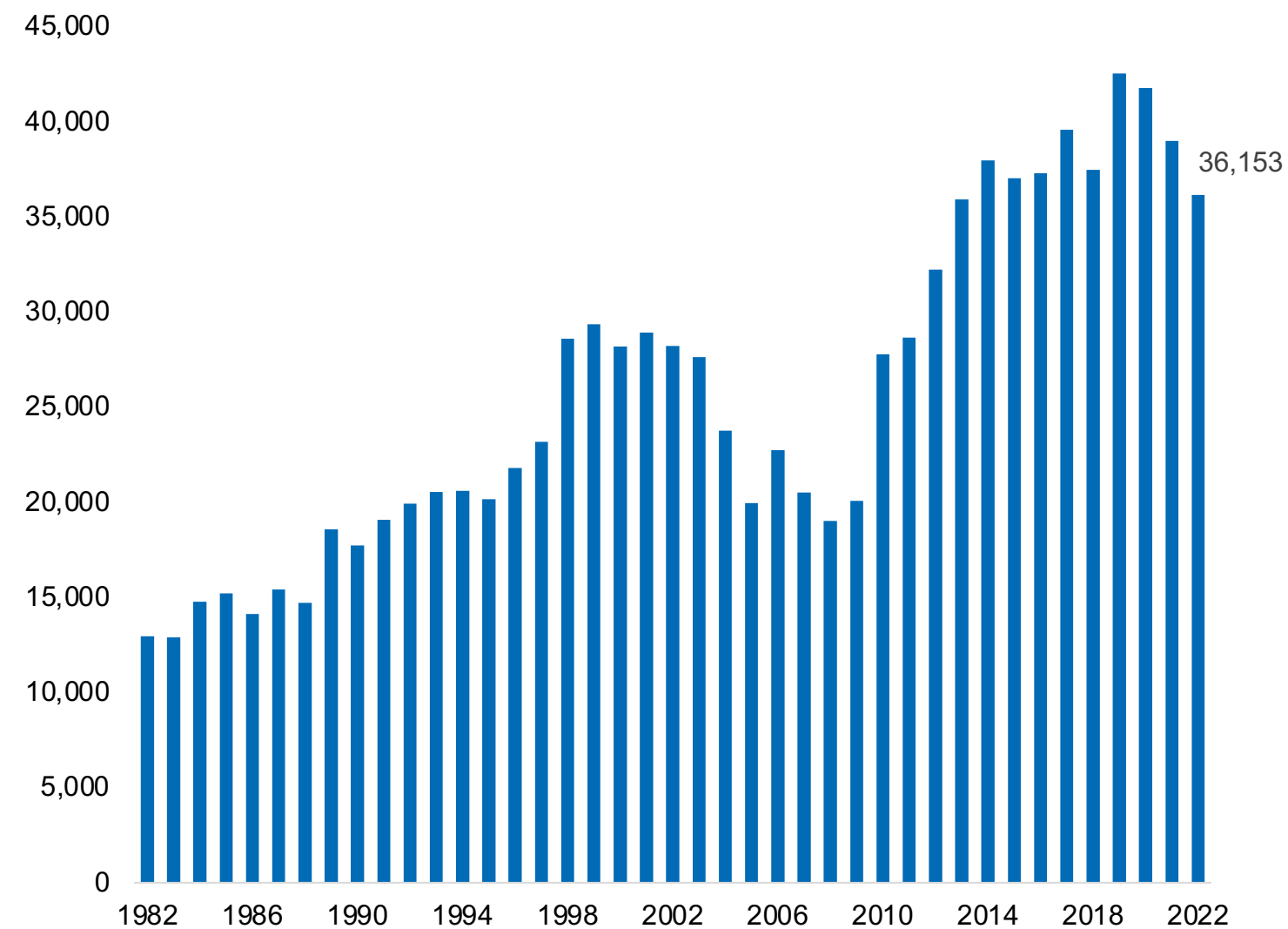


Source: Board of Governors of the Federal Reserve System, Newmark Research

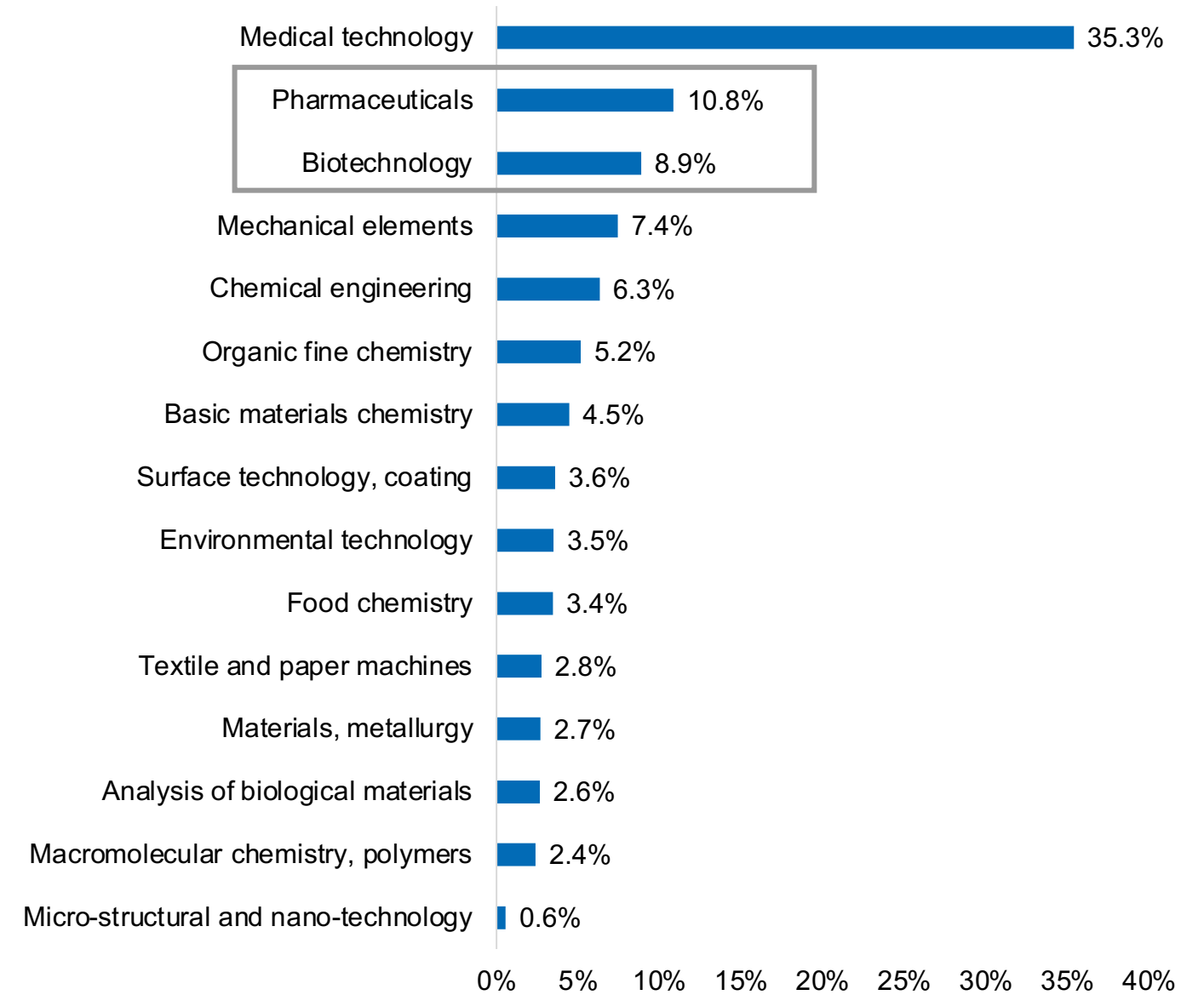
The Impending Patent Cliff Stands to Reshape the Pharmaceutical Industry

Patents issued for biotech-related fields reached a two-year low in 2022. The pharmaceutical and biotechnology fields still represent close to 20.0% of all biotech-related patents issued. The impending “patent cliff” facing several big pharma companies is fast approaching and represents a key risk for investors. According to *PharmaVoice*, patents will expire on 190 drugs by 2030, which will ultimately impact sales revenue.

Biotech-Related Patents Issued by Year



2022 Patents by Field of Technology

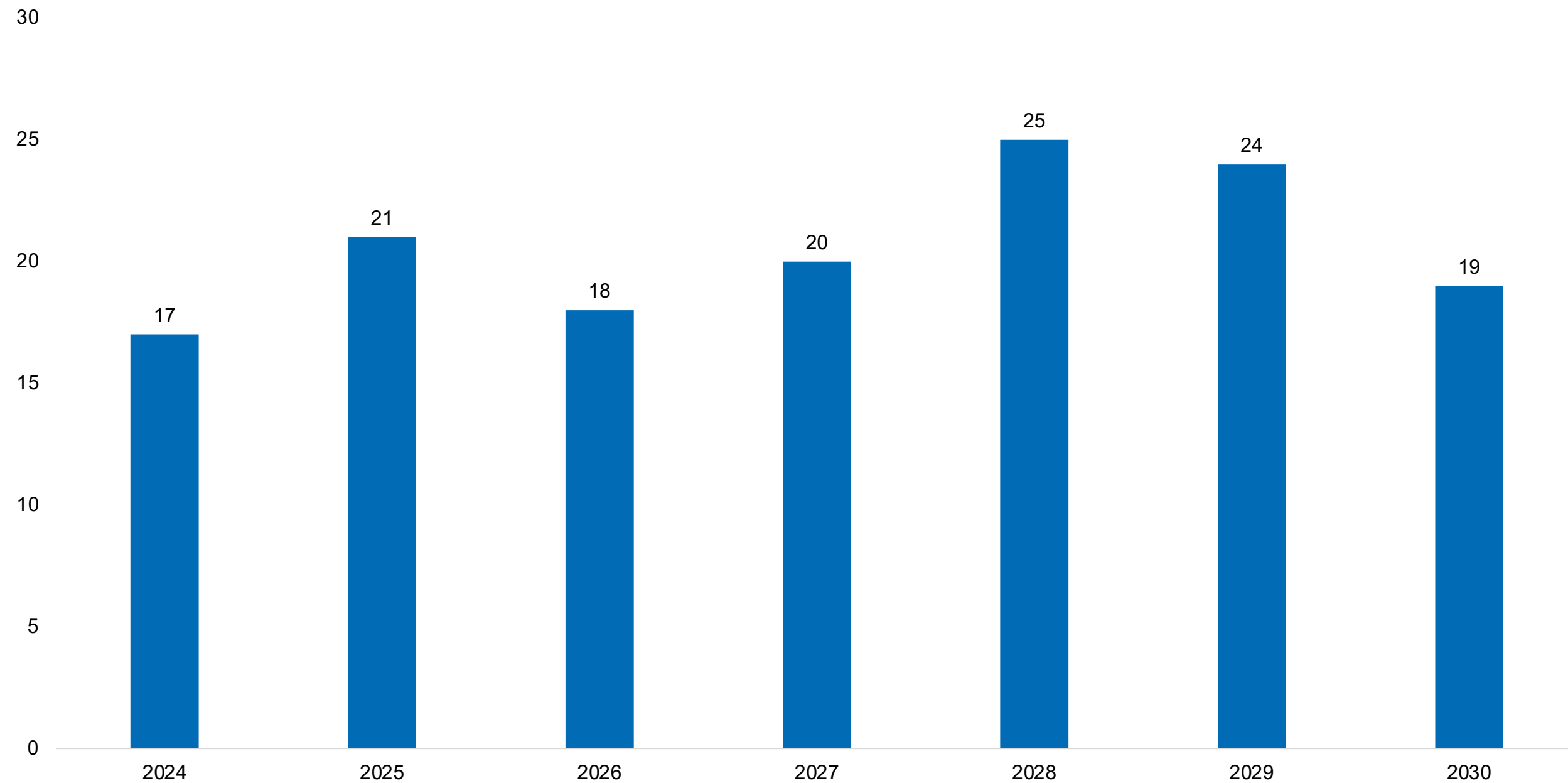


Source: WIPO Statistics Database, Healthpeak Properties, Newmark Research

The Patent Cliff Has Implications for Big Pharma

The size of these impending patent expirations is unprecedented. According to Bloomberg data compiled by RSM US LLP, 144 drug patents from the largest 18 pharmaceutical companies are set to expire between 2024 and 2030. The associated revenues surpass \$300 billion. While the 300 new medicines approved from 2018 to 2023 will help offset projected revenue losses, challenges lie ahead.

Drug Patent Expirations | 18 Largest Pharmaceutical Companies

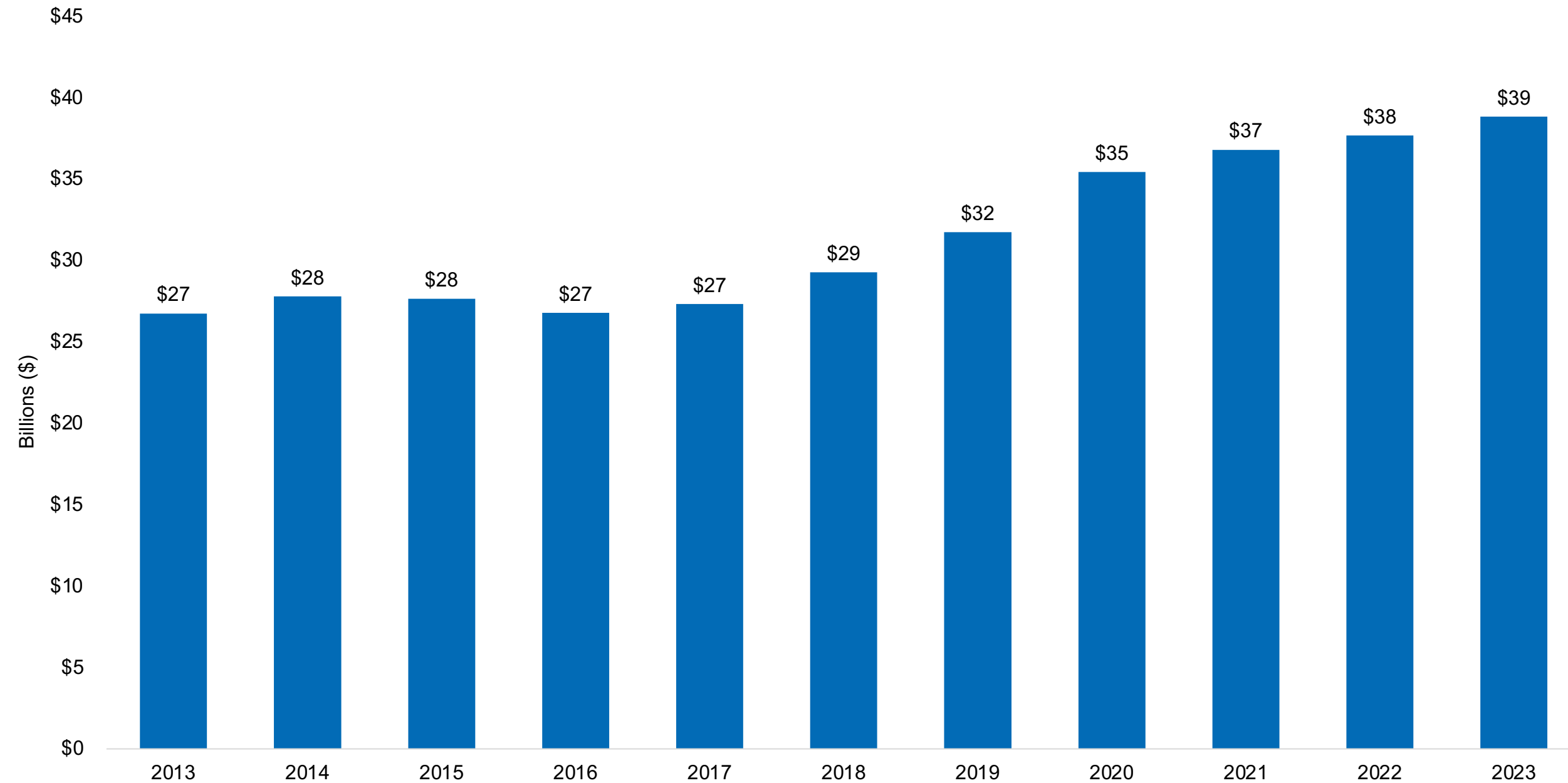


Source: Bloomberg, RSM US LLP, Newmark Research

NIH Funding Growth Is Fueling Institutional Research and Development

Federal funding for medical research continues to grow, with total U.S. NIH funding increasing by 3.1% during 2023. At roughly \$39.0 billion, funding has set a record high and remains an important part of the overall life science ecosystem within the U.S. Funding has accelerated in recent years, with most of the growth over the last 10 years occurring since 2017. The NIH budget is expected to increase in 2024 as well.

Annual NIH Funding U.S. (2013-2023)

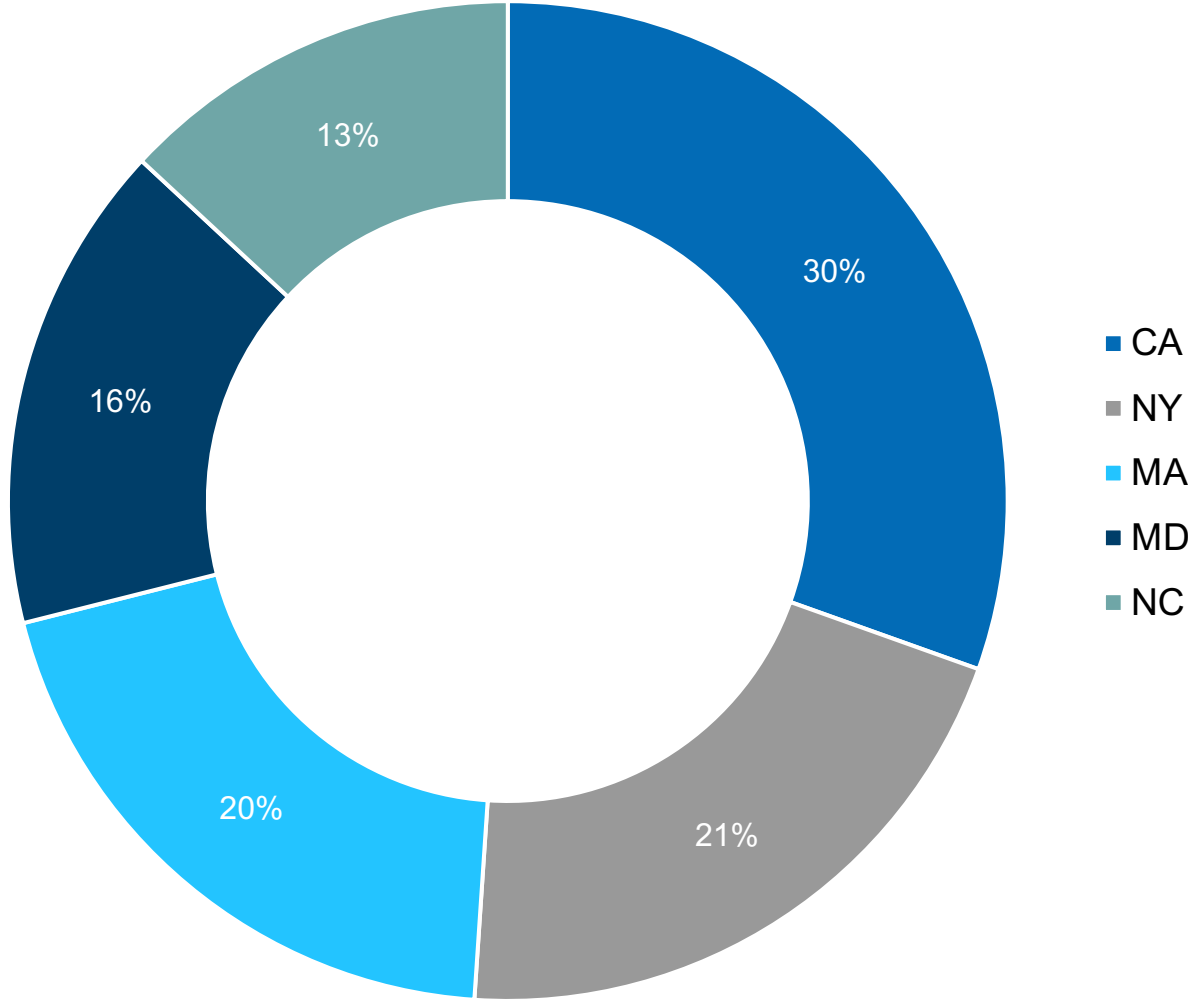


Source: National Institutes of Health, Newmark Research

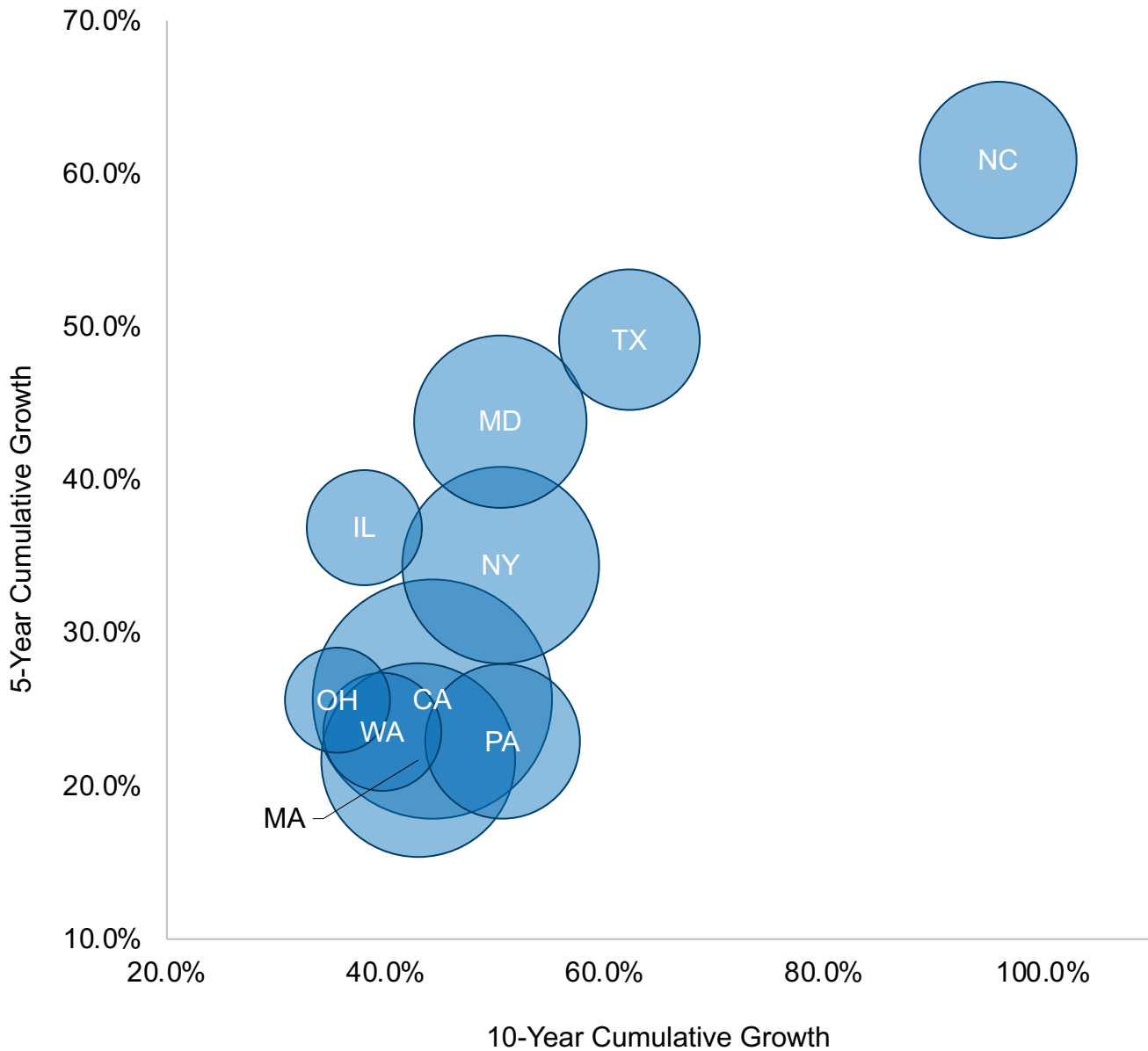
States with Top Life Science Clusters Dominate Grant Funding

The top five states account for 45.8% of NIH funding in the fiscal year 2023, with California leading the way. In terms of historical growth, North Carolina, Texas and Maryland posted the largest gains over the last 10 years.

2023 NIH Funding | Top 5 States



Historical NIH Funding | Top 10 States



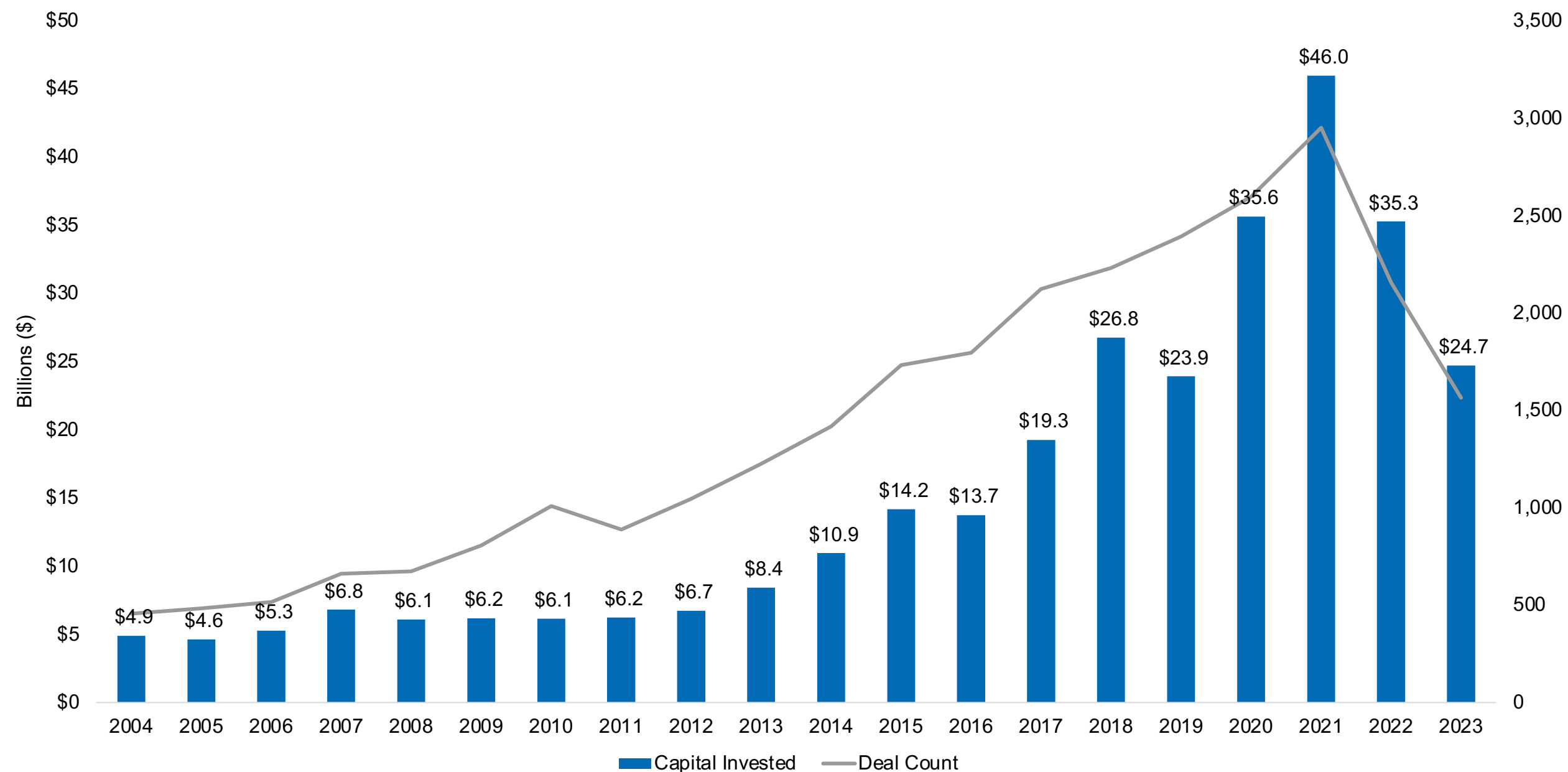
Source: National Institutes of Health, Newmark Research

Size of bubble represents total funding (\$) in 2023

Venture Capital Funding Still above Long-Term Historic Averages

Venture capital funding for U.S. life science companies ended 2023 just below \$25.0 billion. Annual deal volume is 46.2% off from the 2021 peak, with greater declines reported in non-core life science markets. Increasing deals sizes point to continued selectiveness among investors when deploying capital. Life science companies with the most promising science should be able to raise capital but will continue to try to do more with less.

Annual VC Funding (2004-2023)

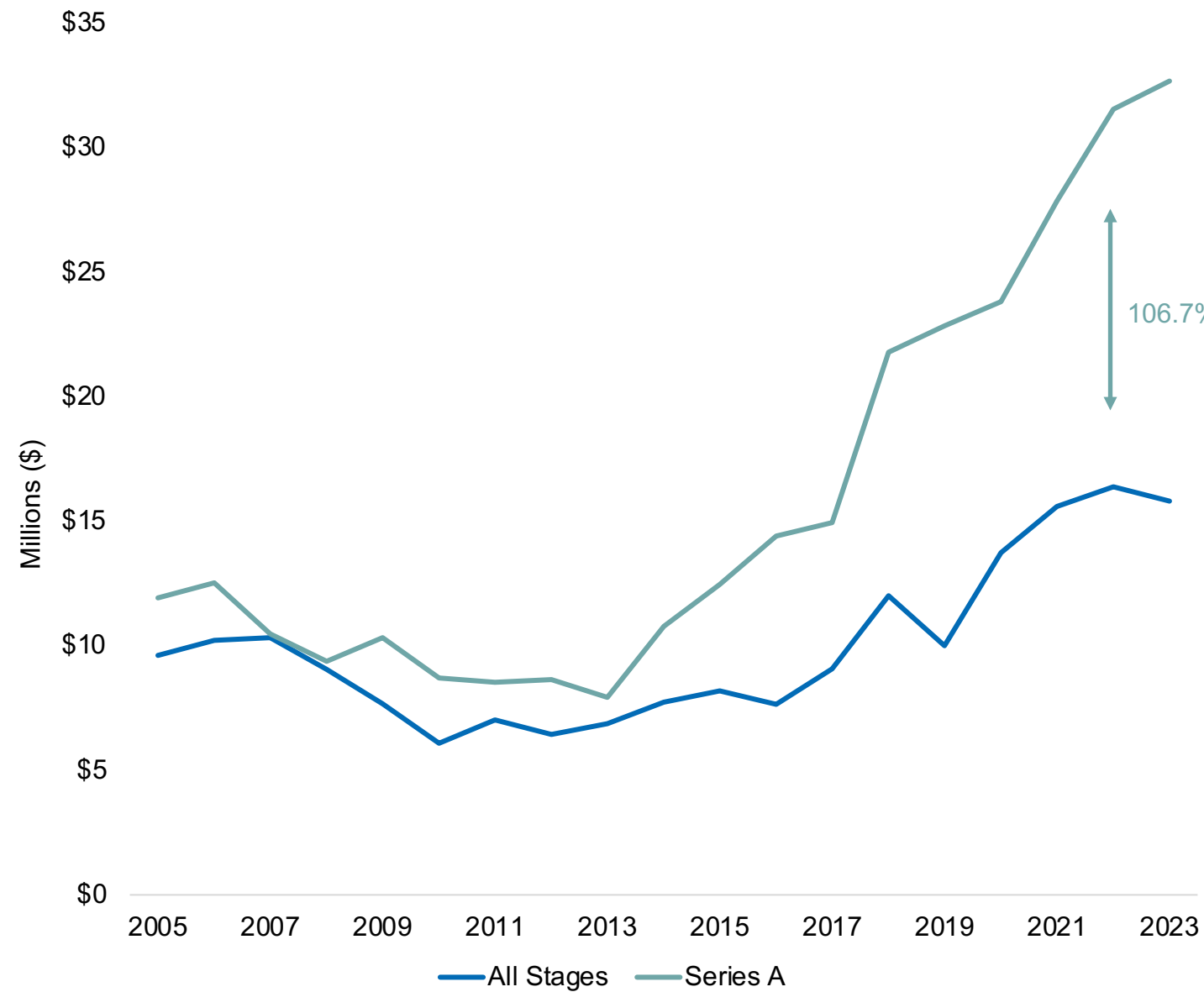


Source: PitchBook, Newmark Research

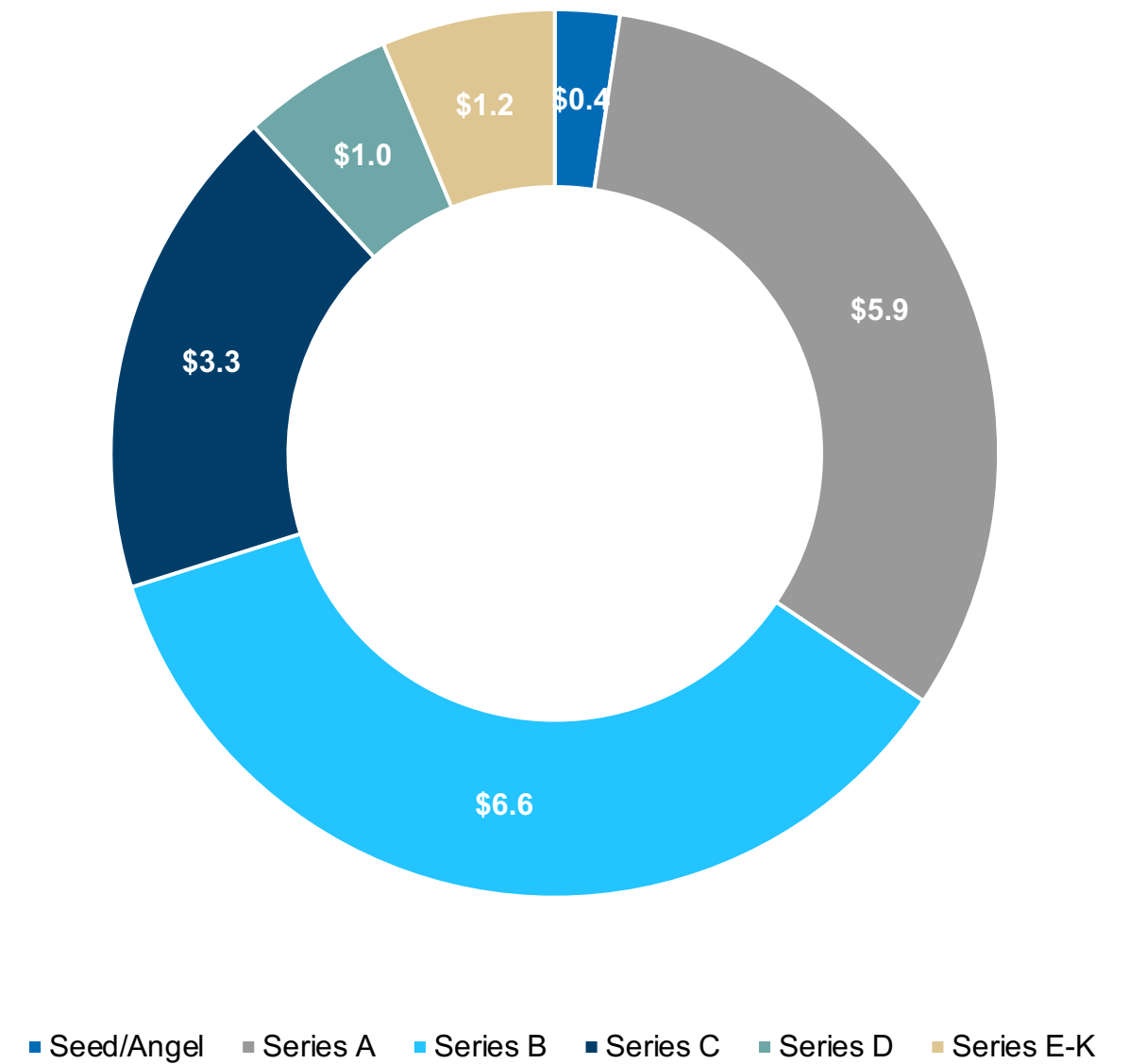
Average Series A Round Has Never Been Higher

The average Series A funding round, which is driven by early-stage biotech companies, has been expanding rapidly since 2015. The average Series A round surpassed \$32.0 million at the end of 2023 and is more than double the average size of all funding rounds. In 2023, Series A funding accounted for 32.0% of the total throughout the U.S. Compared to a year ago, later-stage funding is more depressed than early-stage funding volumes.

U.S. Life Science Funding: Average Deal Size



2023 U.S. Life Science Funding: By Series (in billions)

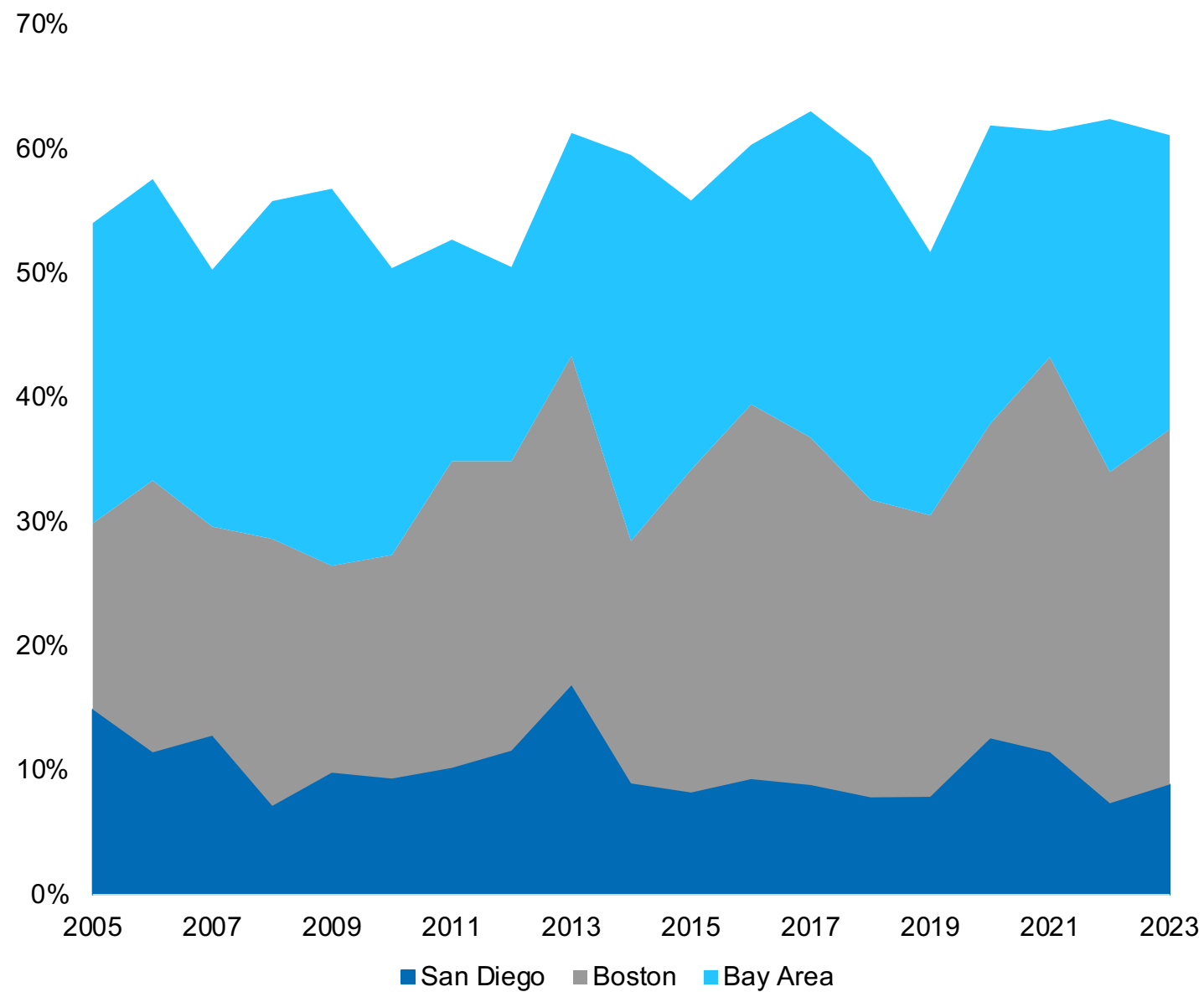


Source: PitchBook, Newmark Research

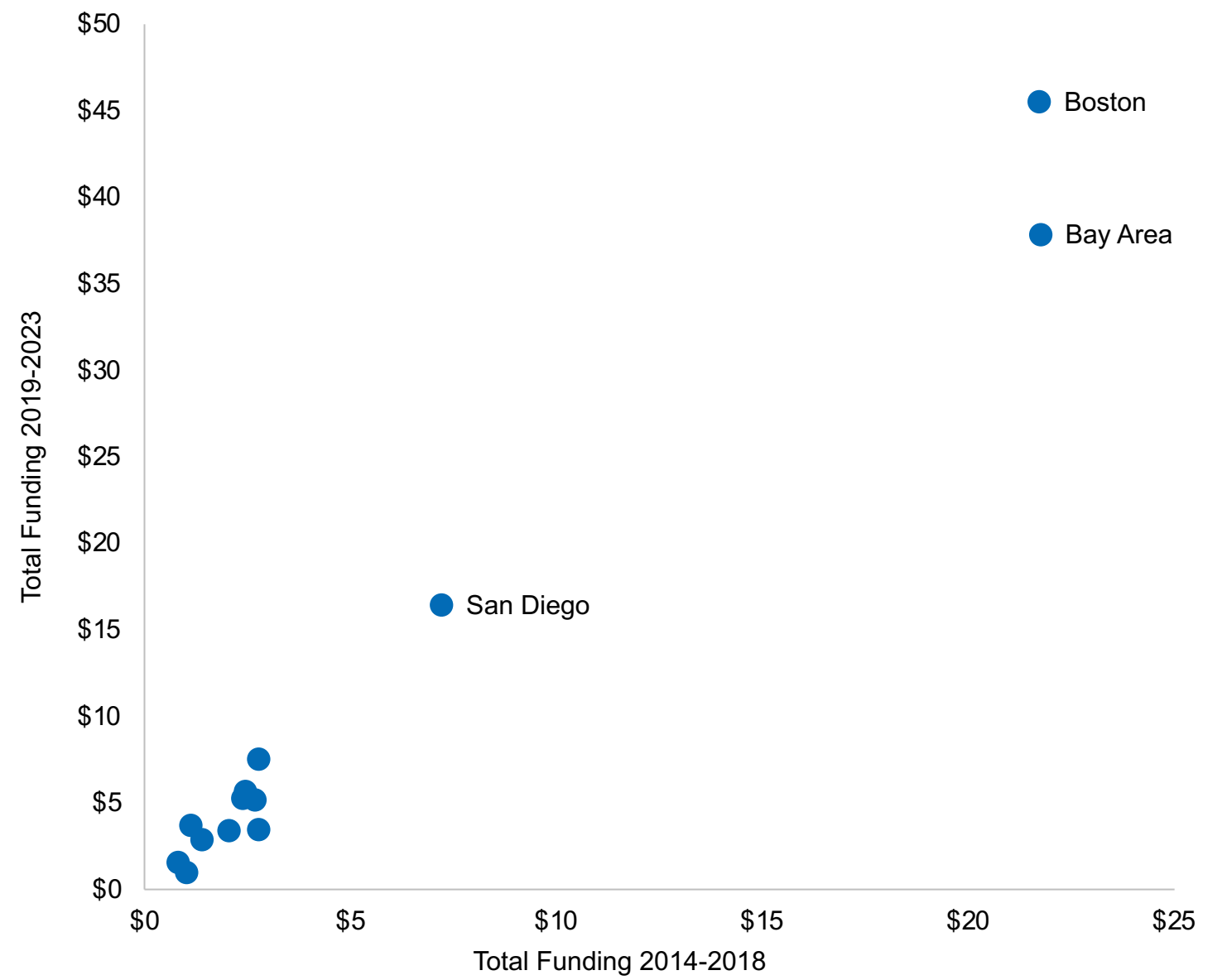
VC Funding Is Also Concentrated in Key Life Science Nodes

The top three life science hubs in the U.S. consistently attract more than 50.0% of all venture capital funding annually. In 2023, life science companies based in these three markets raised \$15.1 billion in funding, which represents a 46.5% decline from peak levels.

Historical Life Science Funding: Top 3 Clusters as % of Total



Historical Life Science Funding: By Metro (in billions)

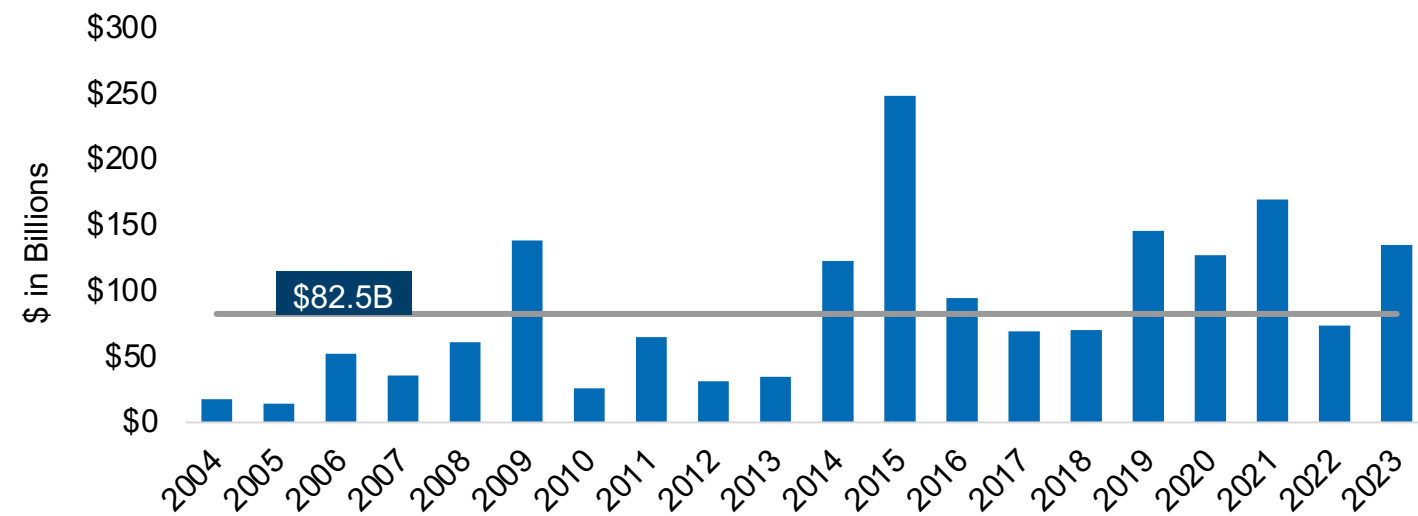


Source: Pitchbook, Newmark Research

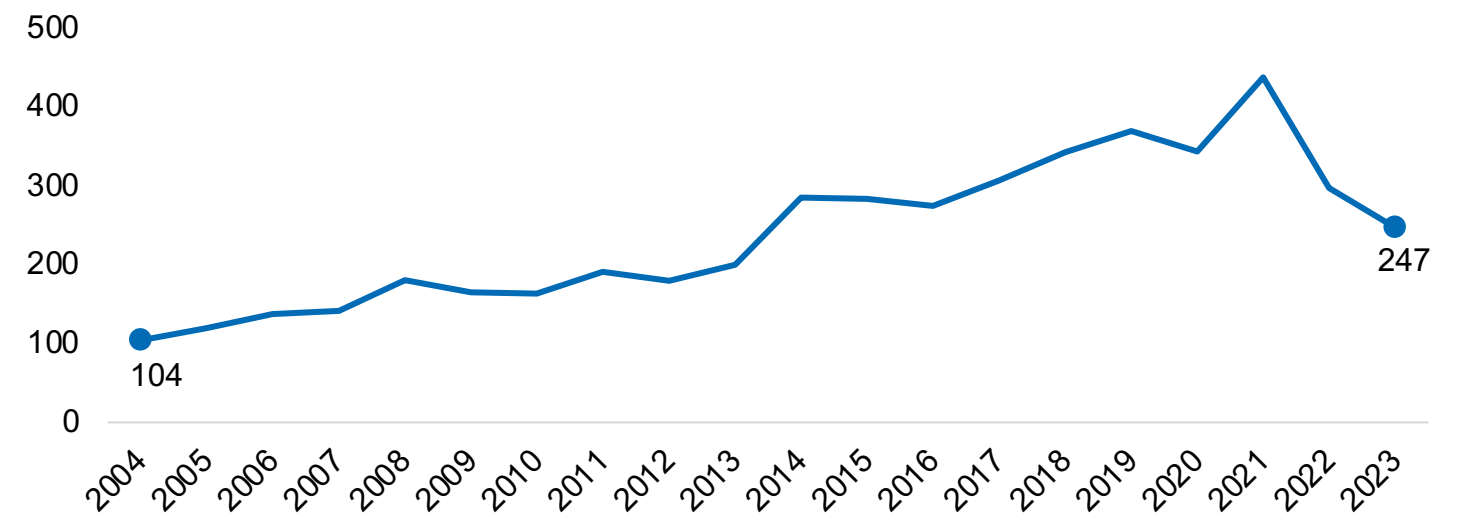
M&A Momentum Exceeds Expectations

While the number of transactions continued to decline through 2023, deal volume improved over the last year. Life science M&A activity reached \$135 billion in 2023, which represents an 83.0% increase from the year prior. Large pharmaceutical companies such as Pfizer, Bristol-Myers Squibb, and Eli Lilly all made acquisitions in recent months. Seattle accounted for an above-average share of M&A volume due to Pfizer's acquisition of Bothell-based Seagen.

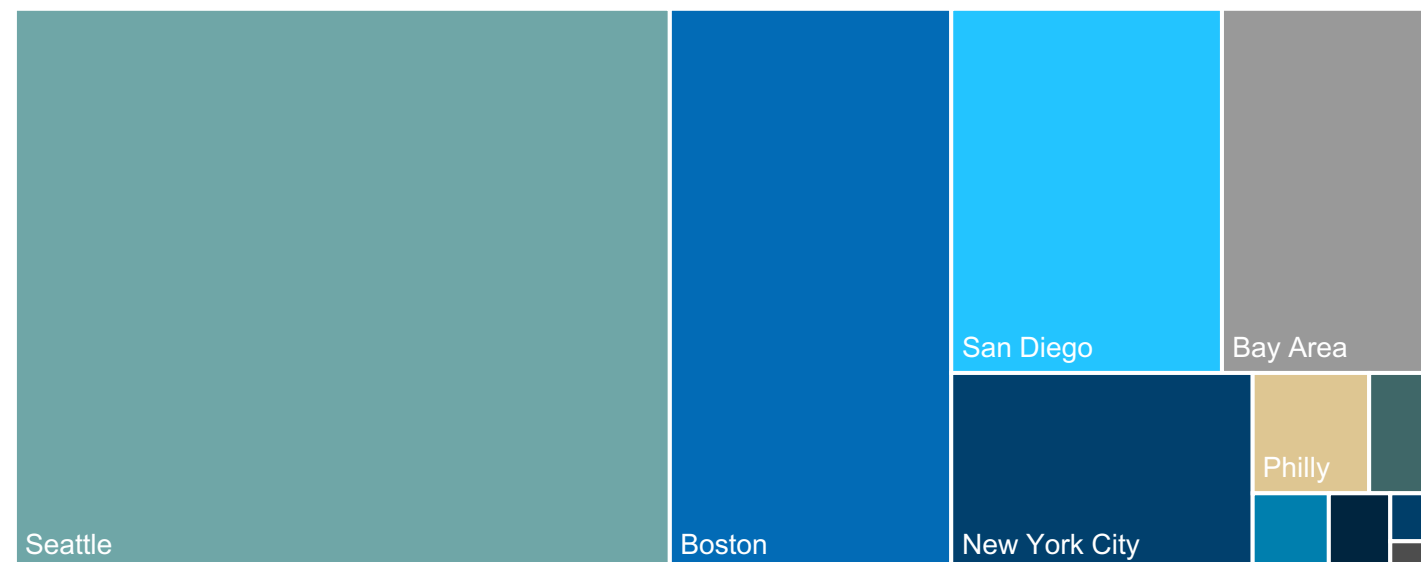
U.S. Life Science M&A Activity | Capital Invested



U.S. Life Science M&A Activity | Deal Count



Share of 2023 Life Science M&A Volume (\$)



Top 2023 Life Science M&A Transactions

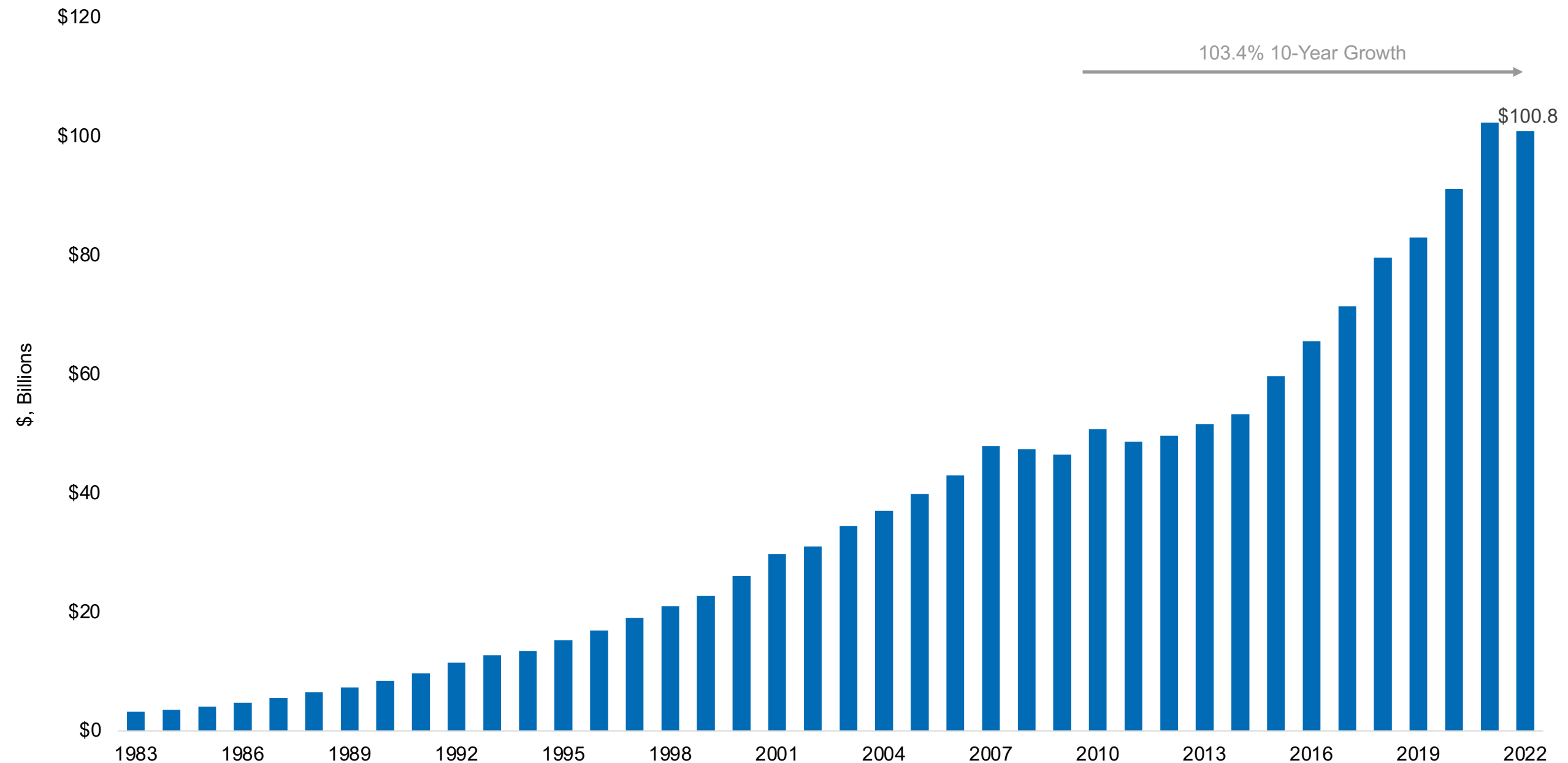
Year	Acquisition	Buyer	Acquisition Price
2023	Seagen	Pfizer	\$43.0B
2023	Karuna Therapeutics	Bristol-Myers Squibb	\$14.0B
2023	Prometheus Biosciences	Merck & Co.	\$10.8B
2023	Reata Pharmaceuticals	Biogen	\$7.3B
2023	Telavant	Roche	\$7.0B
2023	IVERIC bio	Astellas Pharma	\$5.9B
2023	Nimbus Therapeutics	Takeda Pharmaceutical	\$5.0B
2023	Chinook Therapeutics	Novartis	\$3.5B

Source: Pitchbook, Newmark Research

Robust Spending in Corporate R&D Is Driving Rapid Scientific Advances

In 10 years, PhRMA member companies increased research and development spending by more than 100.0%, with trillions of dollars invested over the last 30 to 40 years. Though total investment declined slightly in 2022, this represents the second consecutive year that biopharma companies have spent more than \$100 billion in R&D. Nearly 29% of R&D spending was invested in Phase III R&D activities.

Domestic Biopharma R&D and R&D Abroad, PhRMA Member Companies

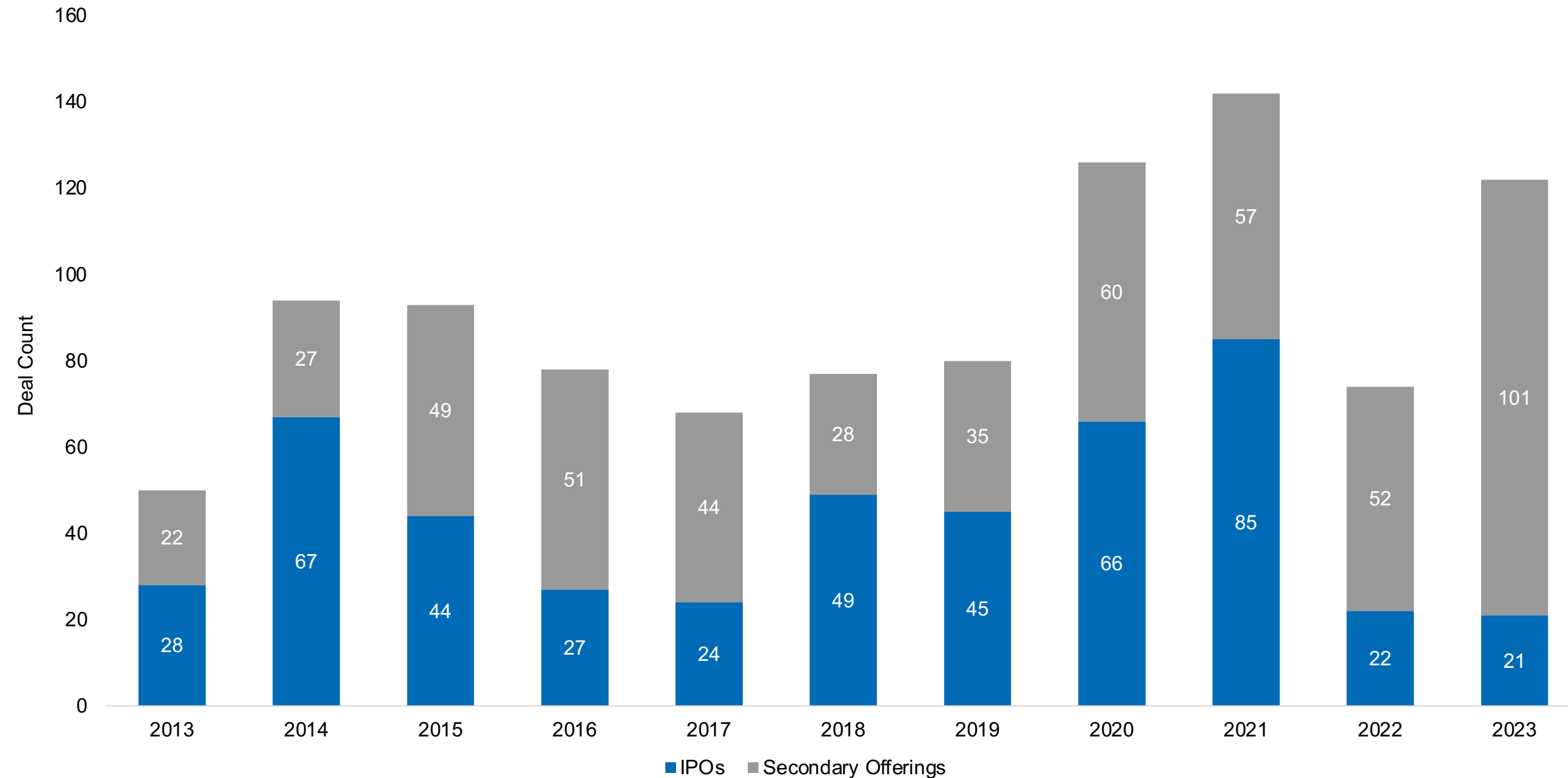


Source: Pharmaceutical Research and Manufacturers of America (PhRMA Member Companies), Newmark Research

The IPO Market Appears to be Thawing, Signaling Positive Momentum

For biotech IPOs, 2022 and 2023 are among the slowest on record. In 2023, 21 biotech companies went public, with total capital raised surpassing the previous year. Investors will likely remain focused on the highest-quality companies to avoid downside risks.

Public Sources of Capital



Will Public Market Performance Continue to Recover?

The Biotech Index from S&P highlights the runup in public company valuations and oversized initial public offerings. After peaking in late 2020 at the height of the market, the index continued to decline through much of 2023. A modest recovery late in 2023 has set the stage for more gains heading into the near year. Cautious optimism has slowly returned for biotech stock performance in 2024 as a result.

S&P Biotechnology Select Industry Index | S&P 500



Source: S&P Global, Newmark Research

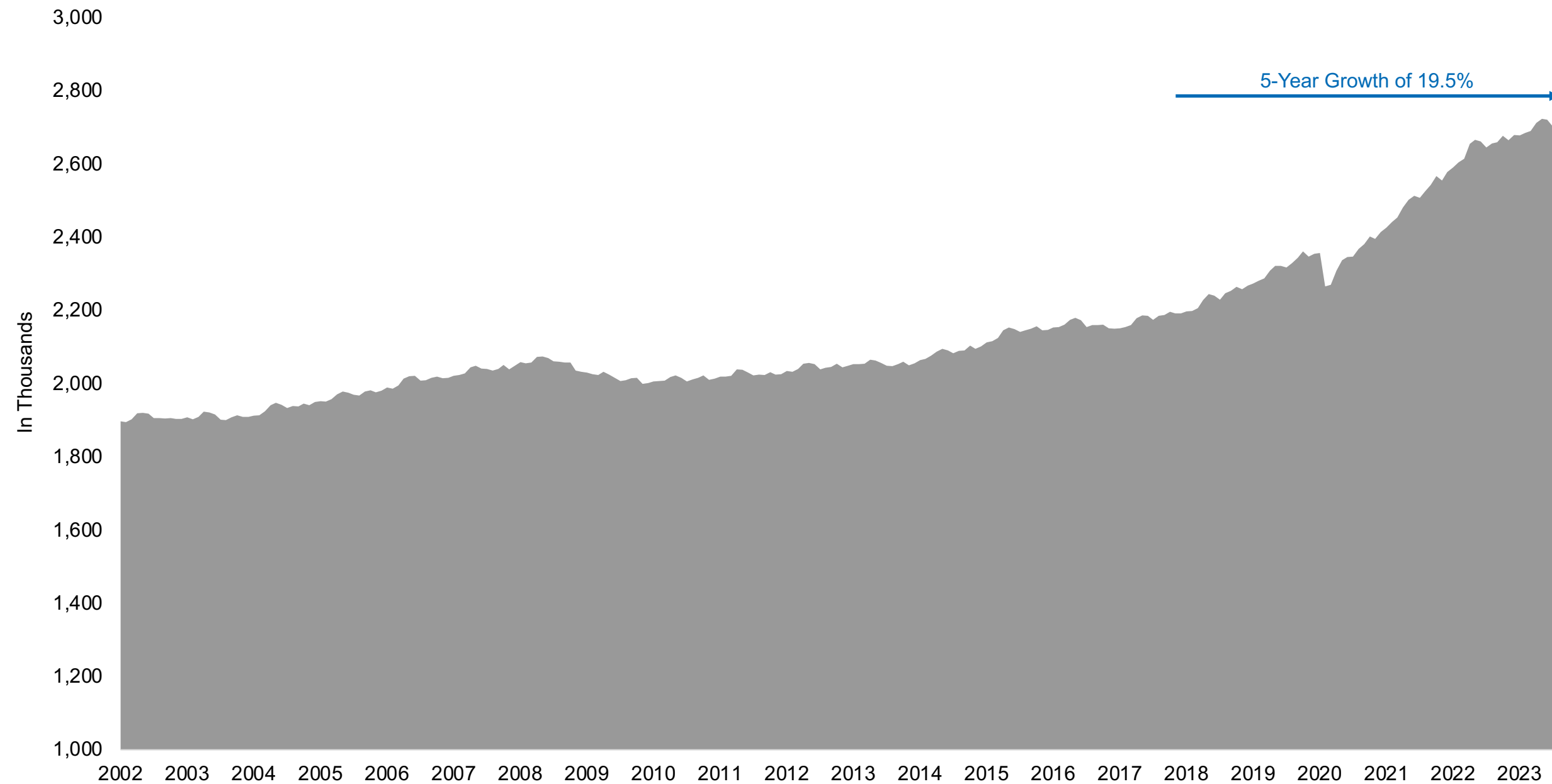
Industry and Talent Trends



Annual Employment Growth Is Decelerating

The expansion in biotech employment began to accelerate in 2017, driven by growth in funding, IPO activity and real estate fundamentals in the life science sector. Late in 2023, year-over-year job growth fell below 2.0% for the first time since early 2021.

Total U.S. Biotech Employment

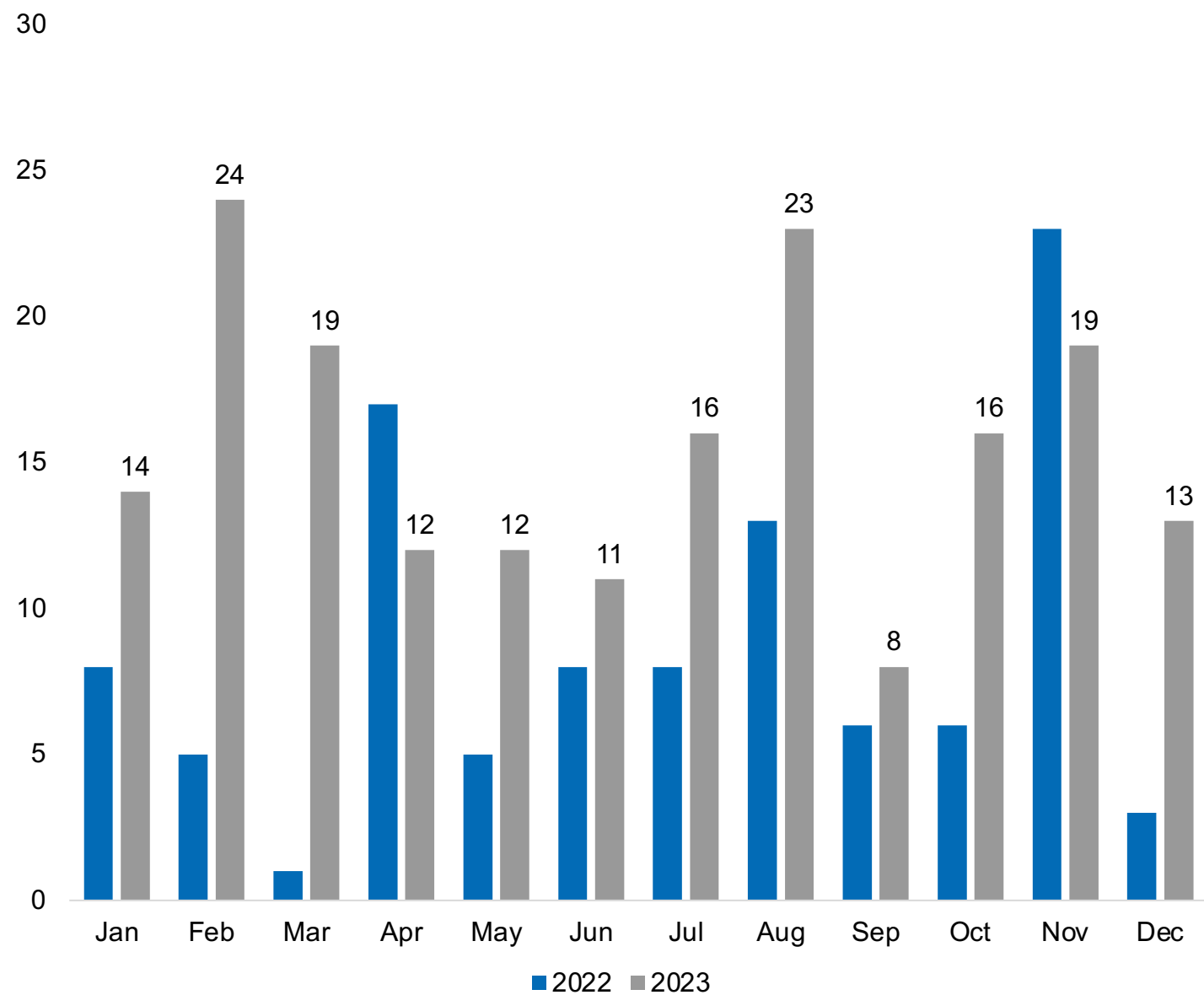


Source: Moodys, BLS, Newmark Research

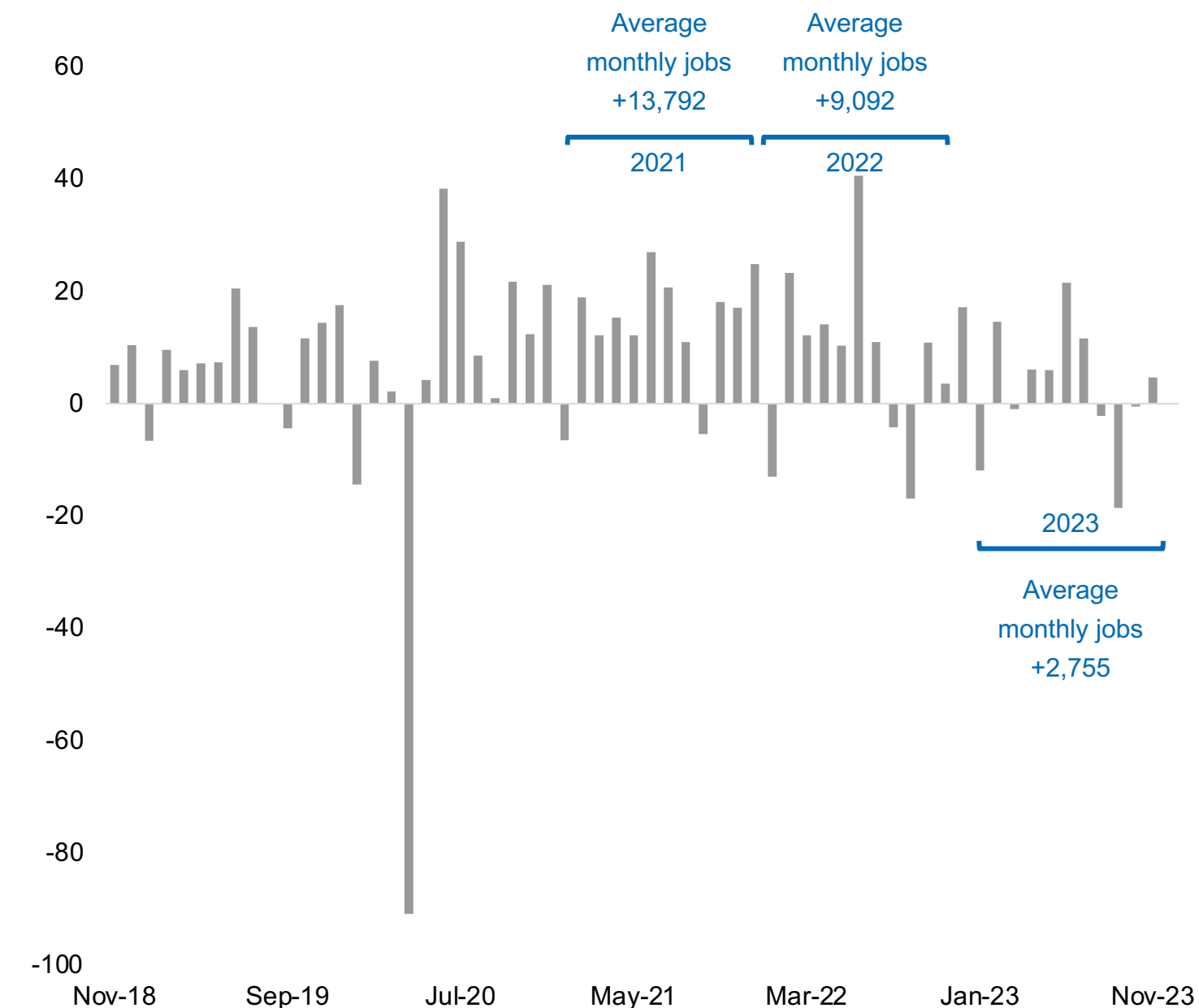
Late 2023 Life Science Employment Growth Was Anemic

According to data from Fierce Biotech, 187 life science companies announced layoffs in 2023. This represents an 81.6% increase from the year prior. While more than 30,000 biotech-related jobs were added to the economy through November of 2023, annual gains were less than 2.0%. Persistent layoffs and sector headwinds will likely continue to weigh on labor markets in this space.

Number of Life Science Companies Announcing Layoffs



Monthly Change in Life Science Employment

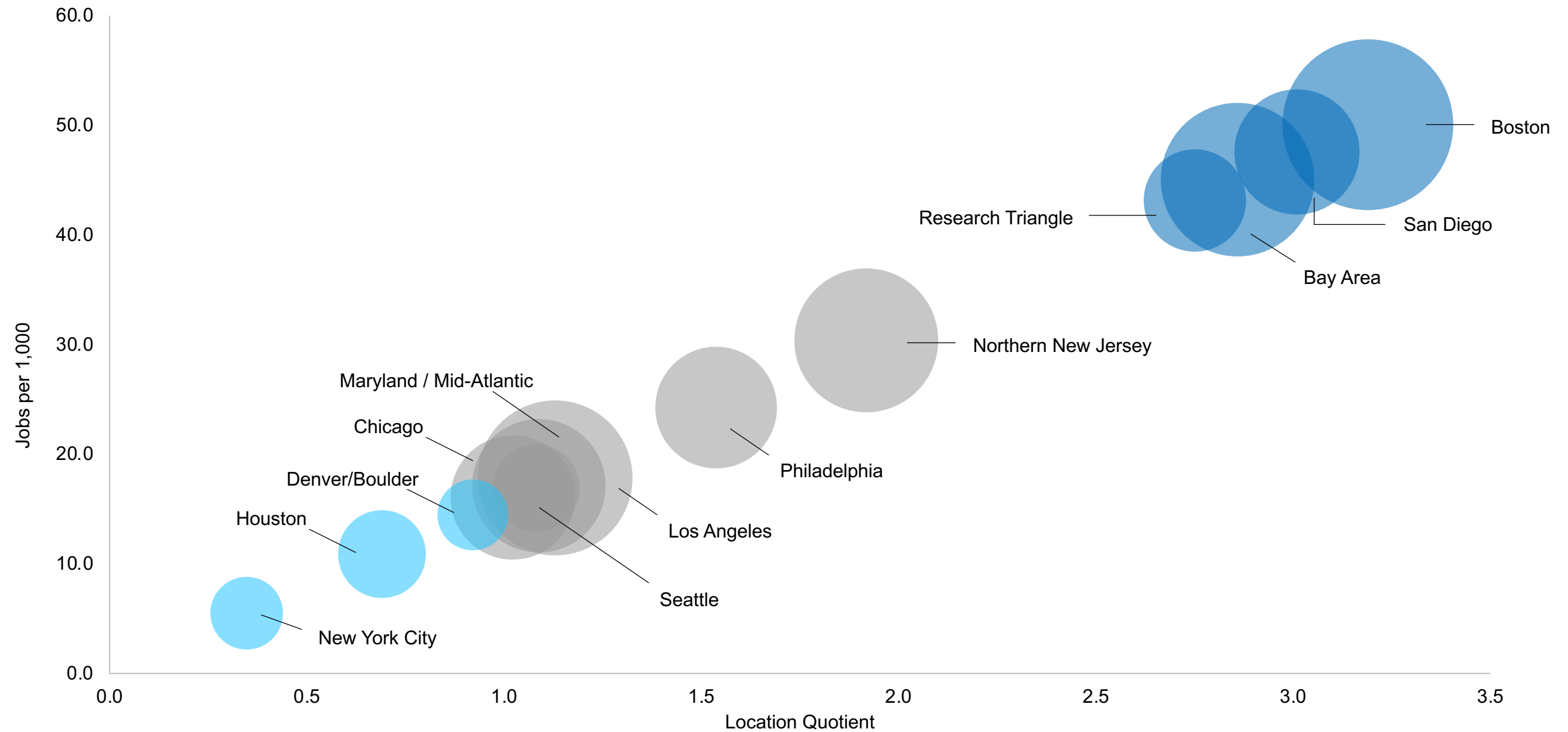


Source: Fierce Biotech, Moodys, Newmark Research

Key Hubs Maintain High Occupation Density

The top four life science metros boast the highest concentrations of biotech employment within the U.S. Access to a deep talent pool remains a critical driver of tenant demand and growth within the industry.

Size and Density of Biotech Employment



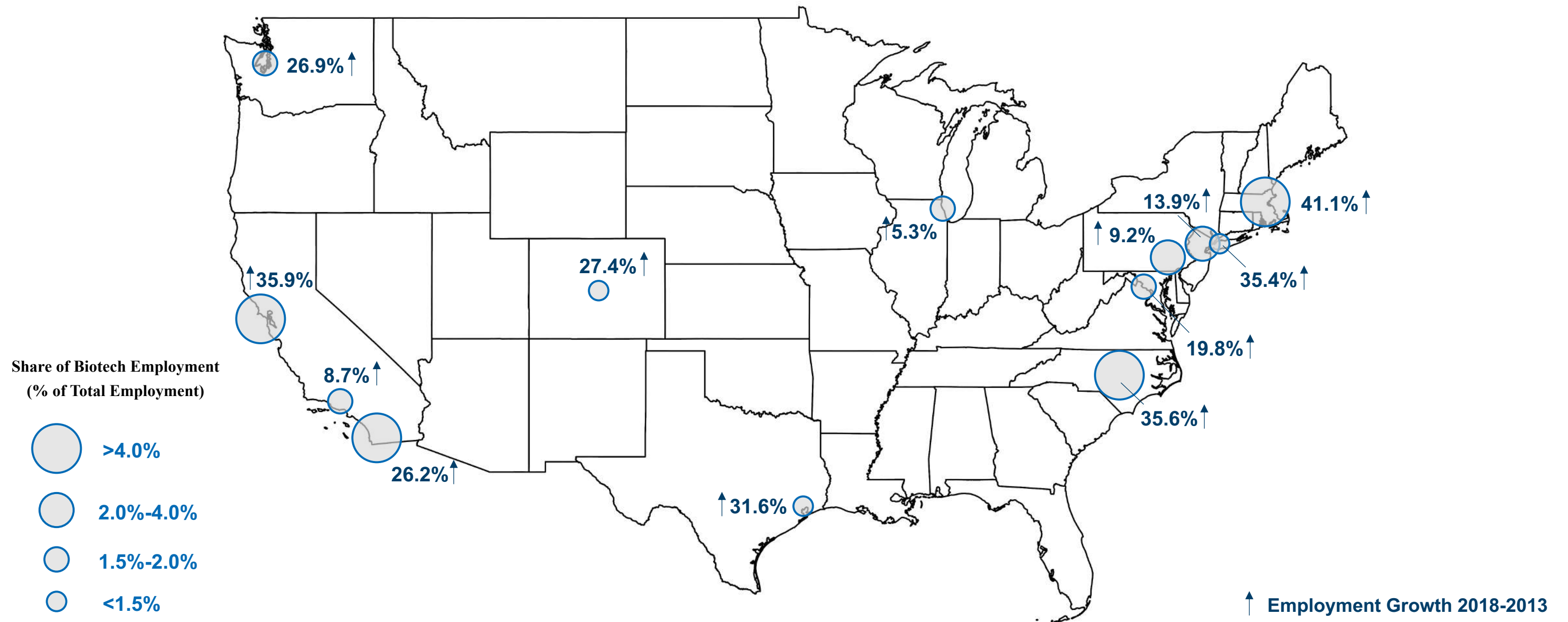
Source: JobsEQ, Newmark Research

Size of bubble represents total biotech employment

Large Markets Also Boast Above-Average Job Gains

On a nominal level, the top three markets for life science activity accounted for more than 50.0% of jobs added over the last 10 years. Employment growth from 2018 to 2023 in most markets far outpaced the previous five-year expansion period. Boston topped the list for growth, with biotech jobs increasing by roughly 41.0% since 2018. Year-over-year gains are slowing in the face of more challenging market conditions.

Biotech Employment Concentrations and Historical Growth (2018-2023)



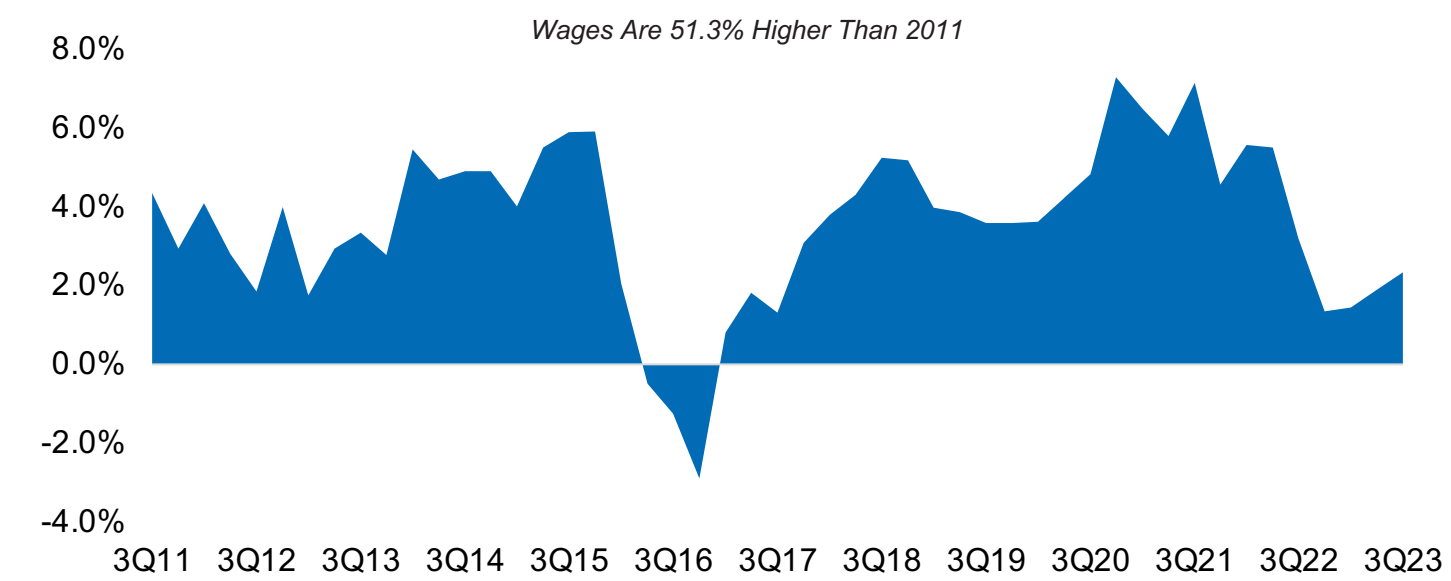
Source: JobsEQ, Newmark Research

Job Openings Have Reached a Three-Year Trough

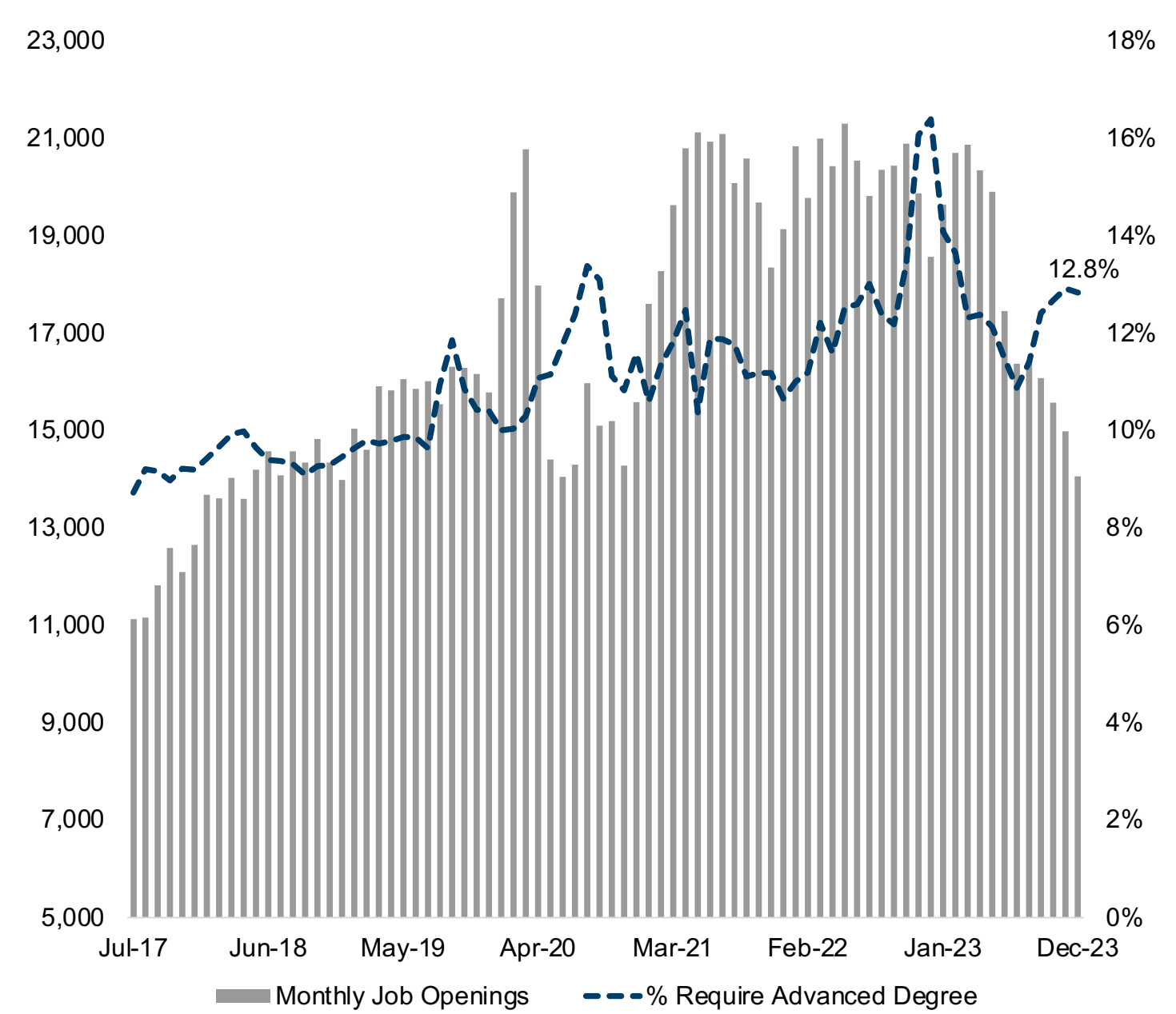
Tumult in the life science sector led to persistent layoff announcements and lower job openings within the U.S. market during the second half of 2023. As of December 2023, there were roughly 14,000 active job openings, which represents a three-year low. The share of jobs requiring an advanced degree increased over the last six months as the need for highly-skilled labor persists. Wage growth has also decelerated from the heady days of the pandemic and will likely be further impacted by labor market weakness.

2023 Ave. Annual Salaries	Biochemists	Biomedical Engineers	Chemists	Medical Scientists
Boston	\$126,400	\$117,400	\$122,000	\$131,700
Bay Area	\$139,300	\$137,900	\$124,500	\$149,900
San Diego	\$132,300	\$119,200	\$103,300	\$126,600
U.S. Average	\$118,400	\$110,700	\$95,800	\$114,100

1-Year Change in Average Annual Wages per Worker



Biotech Job Openings

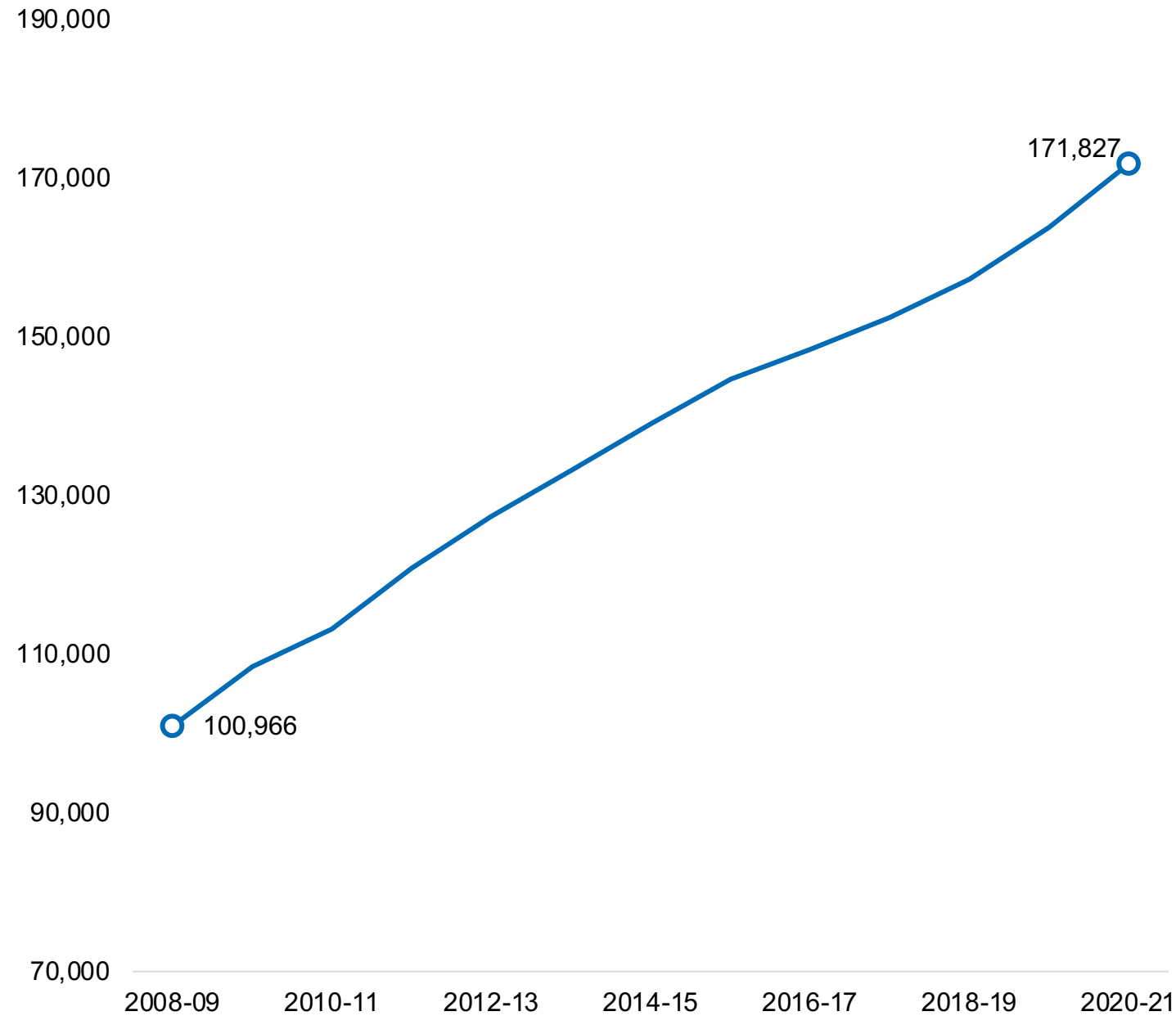


Source: JobsEQ, Newmark Research

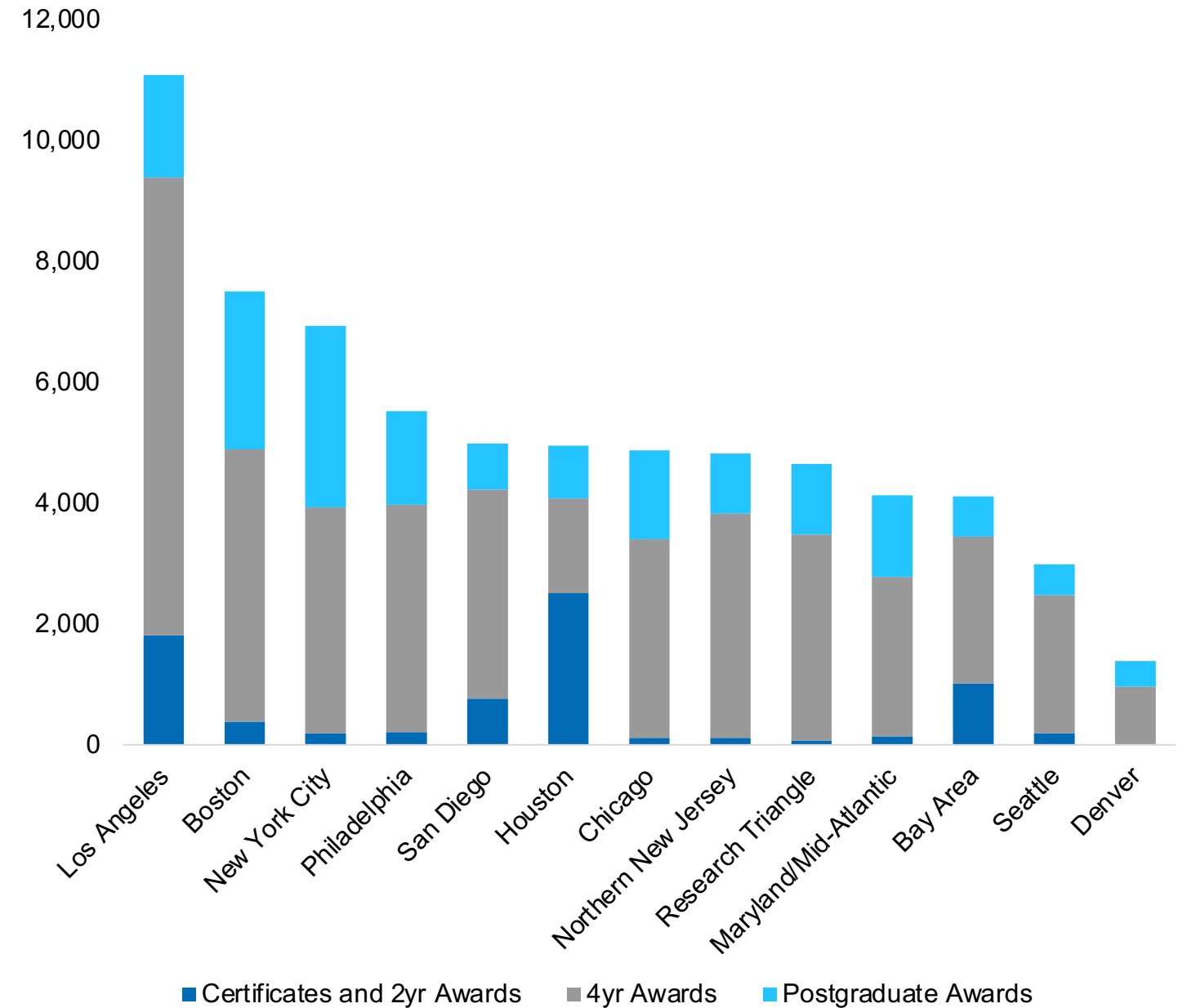
Emerging Talent Remains Critical for Long-term Sector Growth

The number of biological and biomedical science degrees awarded each year continues to grow, expanding by 70.0% since 2008. The most life science-related degrees are being awarded in Los Angeles, Boston and New York City, which tracks closely with outsized tech transfer activity.

Biological and Biomedical Sciences Degrees Awarded



Life Science-Related Degrees Awarded by Metro

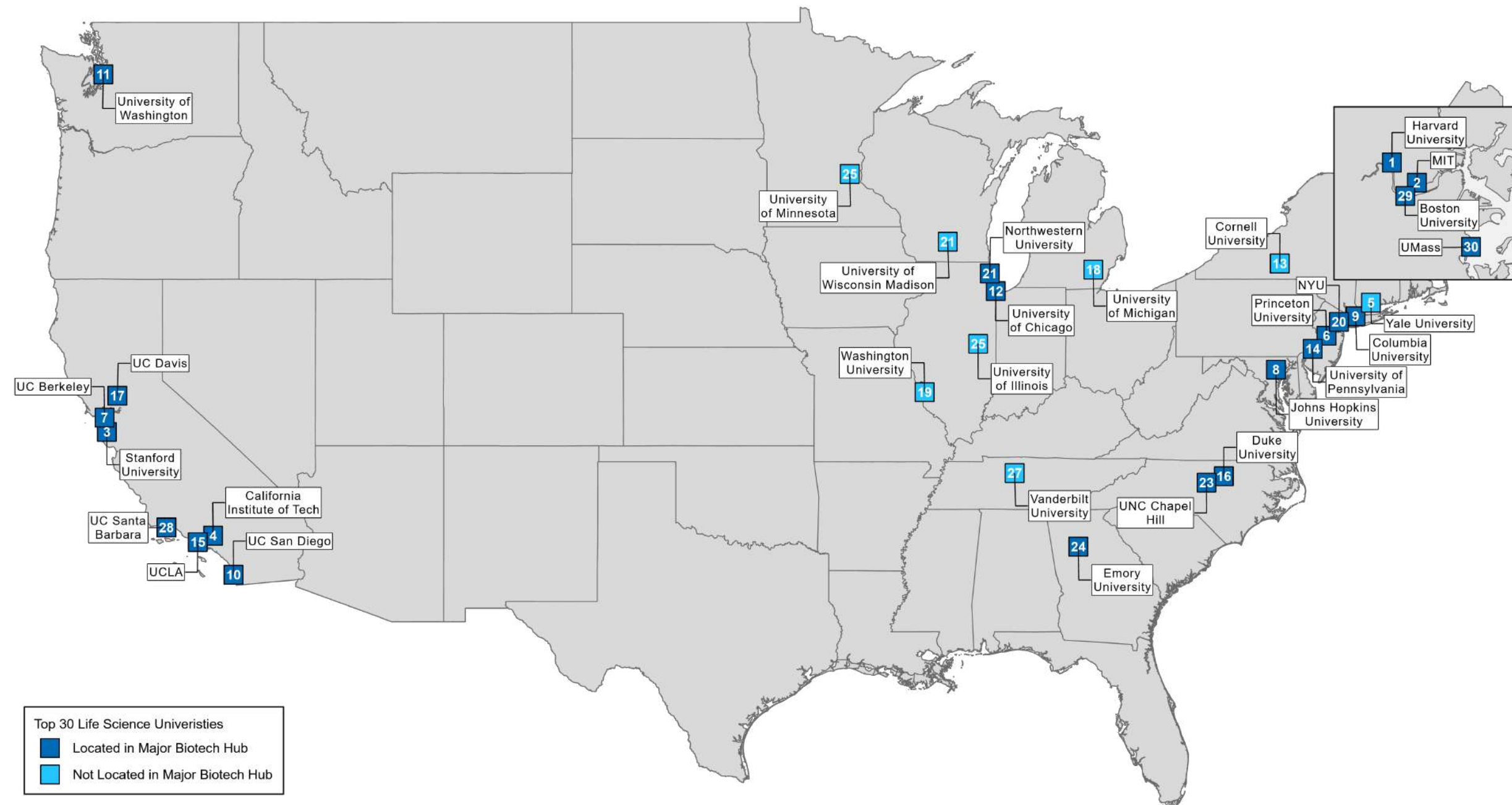


Source: JobsEQ, National Center for Education Statistics, Newmark Research

Colleges and Universities Support the Talent Pipeline

The concentration of top educational institutions is vital to the life science ecosystem. To keep the pipeline filled with qualified employees, top markets for life science are also home to many colleges and universities that produce the most life science degrees. In fact, 23 out of the 30 top schools for life science degrees are in a major biotech hub.

Top 30 Universities for Life Science Degrees



Source: Times Higher Education 2023 Rankings, Newmark Research

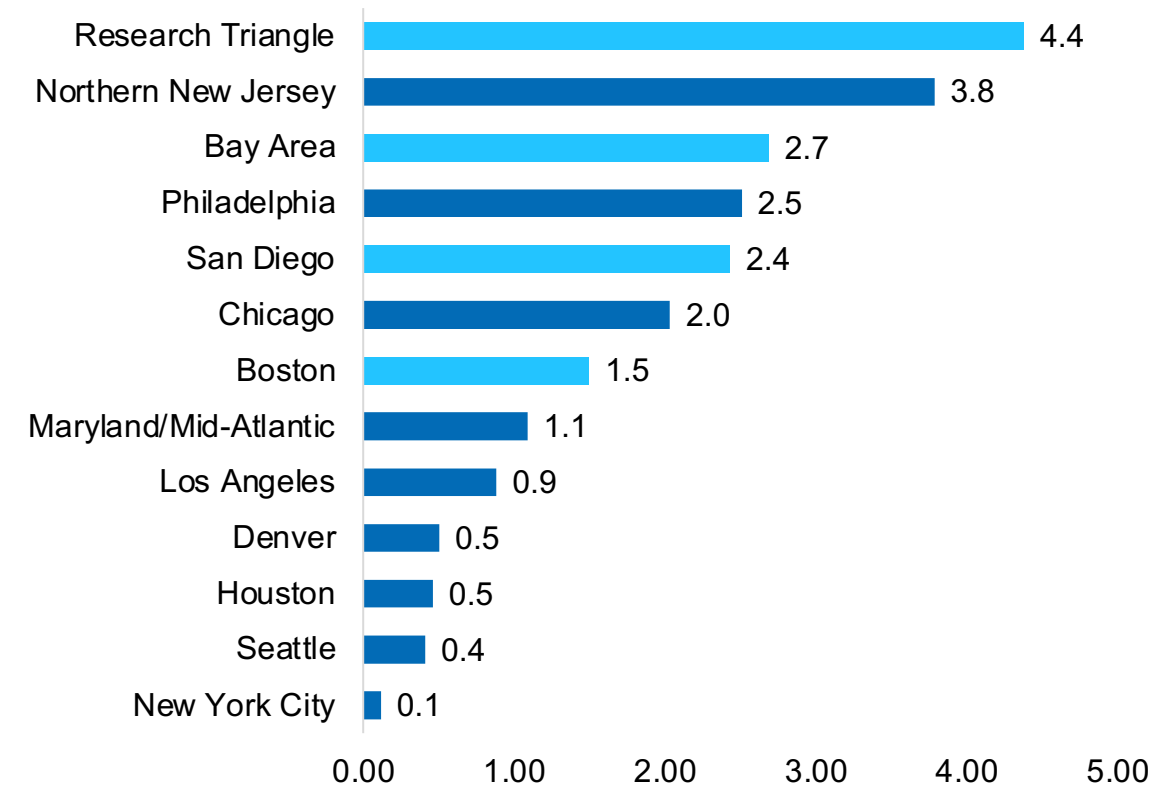
Despite Current Job Losses, the Outlook for Biomanufacturing is Positive

A resurgence in domestic drug manufacturing grew employment in this sector to a 30-year high. While Northern New Jersey boasts the greatest number of jobs, the Research Triangle maintains the highest concentration among the top life science markets. Across the U.S., biomanufacturing employment peaked in May of 2023 and ended the year 2.2% below that high point. Prospects for growth remain positive due to recent investments in the onshoring and nearshoring of advanced manufacturing facilities in North America.

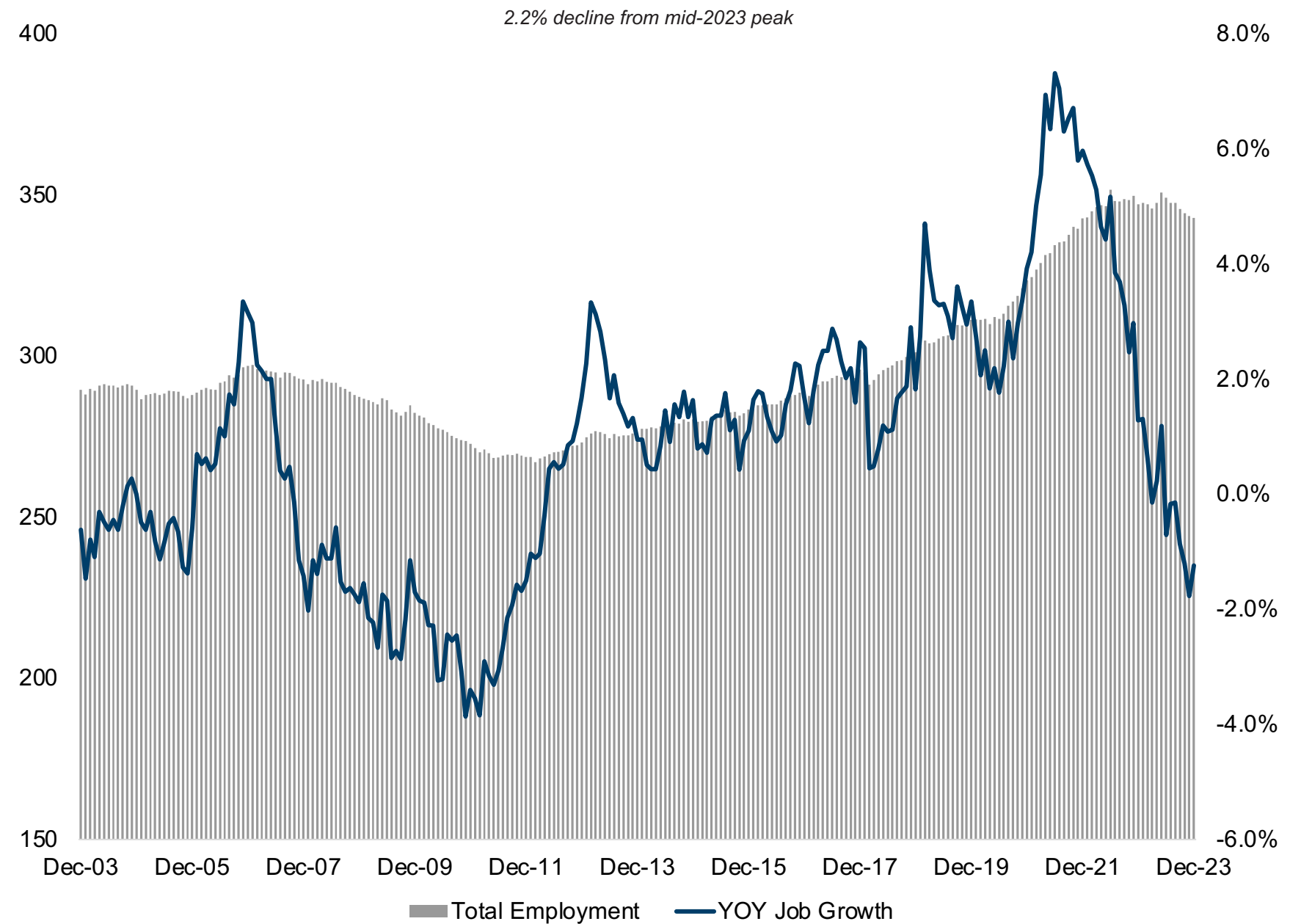
2023 Pharmaceutical and Medicine Manufacturing Employment

Northern New Jersey	26,462
Chicago	20,570
Philadelphia	16,206
San Francisco	14,675
Los Angeles	12,422

Pharmaceutical and Medicine Manufacturing Location Quotients



Historical Pharmaceutical and Medicine Manufacturing Employment



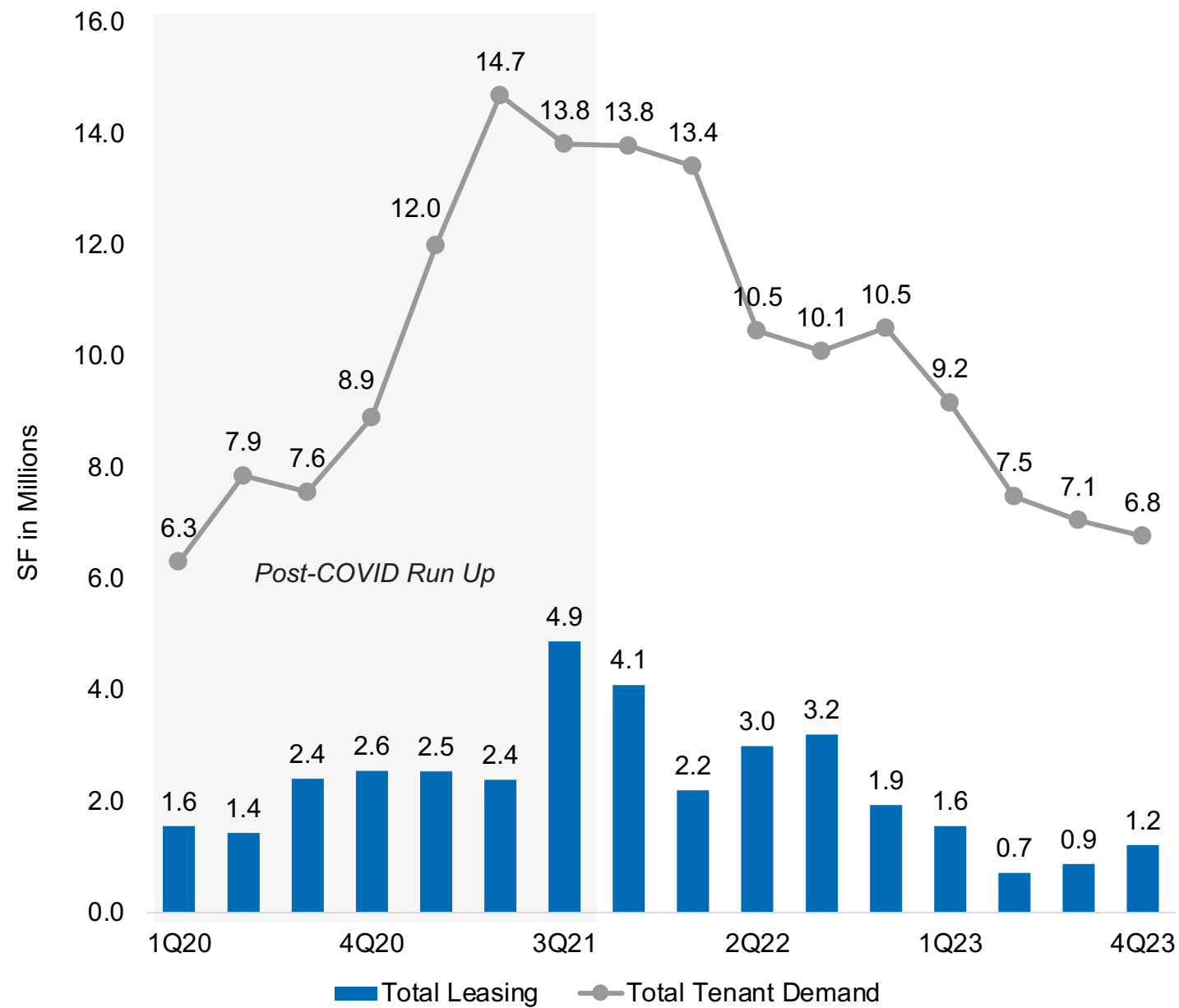
Market Fundamentals



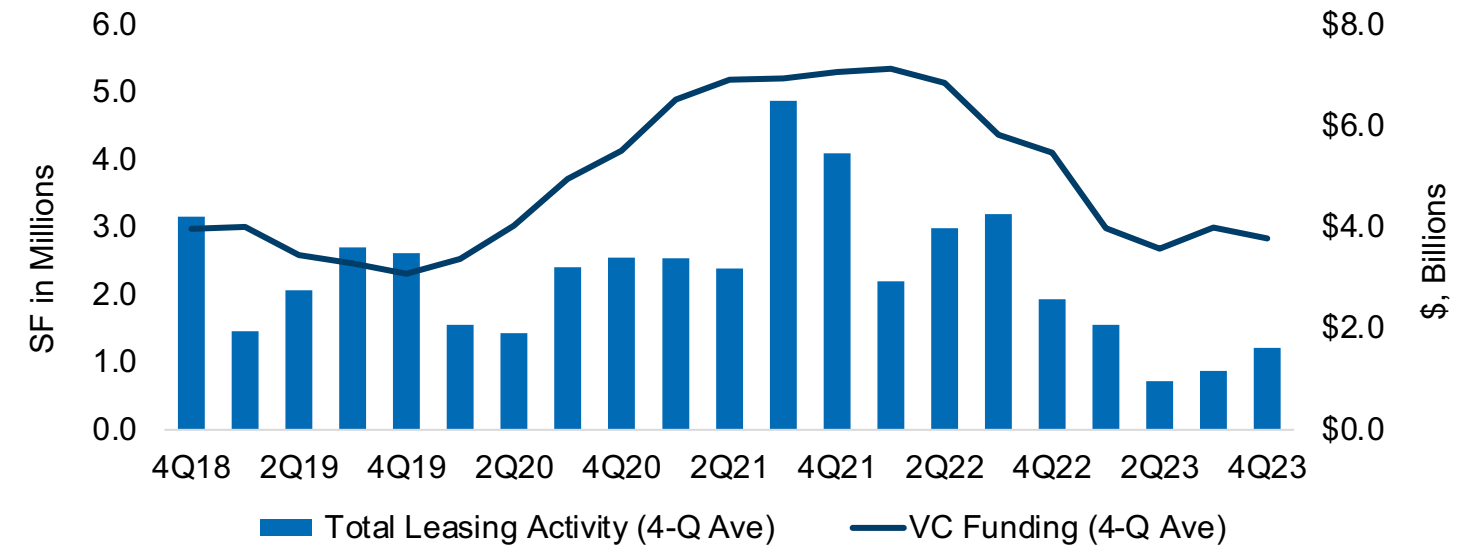
Life Science Demand Reaches Pre-Pandemic Levels

Active tenants across the Boston, Bay Area and San Diego markets ended 2023 54.0% below the mid-2021 peak of 14.7 million SF. Total requirements are now in line with levels reported prior to the post-COVID bull market. Leasing velocity crested during the second half of 2021, with nearly 9.0 million SF in volume. Despite improving over the last few quarters, activity slowed considerably as several tenants wait for funding before transacting.

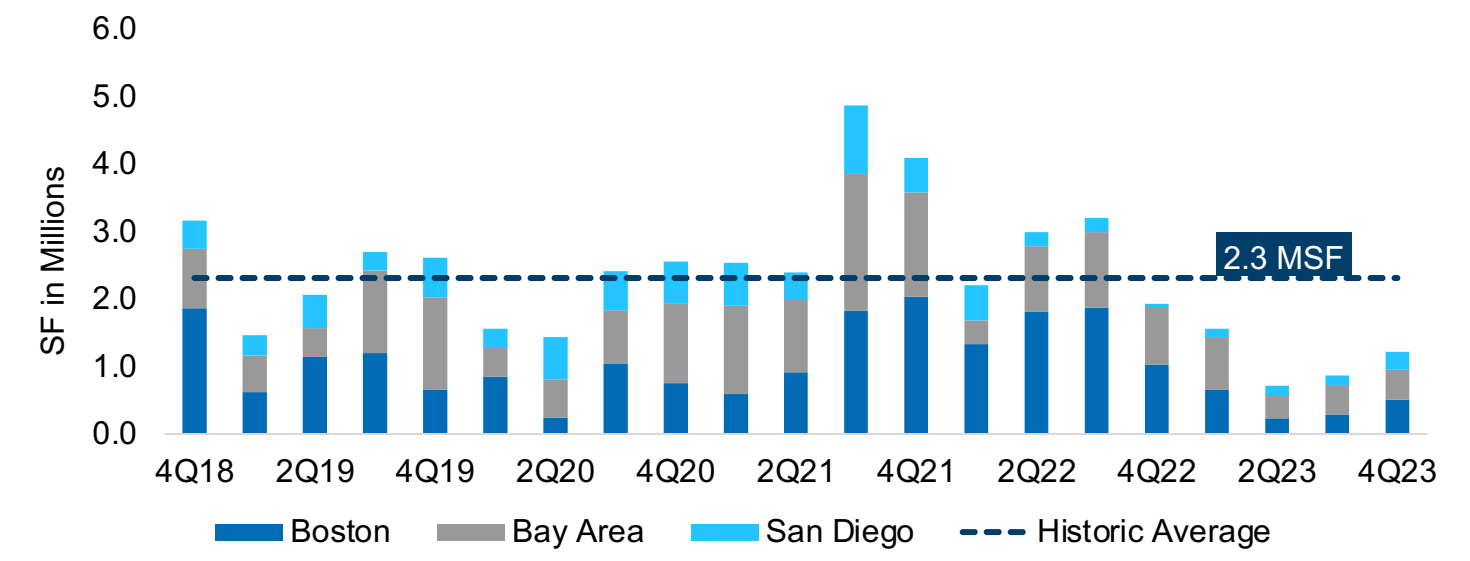
Historical Active Tenants in the Market and Leasing Activity



Historical Venture Capital Funding and Leasing Activity



Historical Leasing Activity by Market

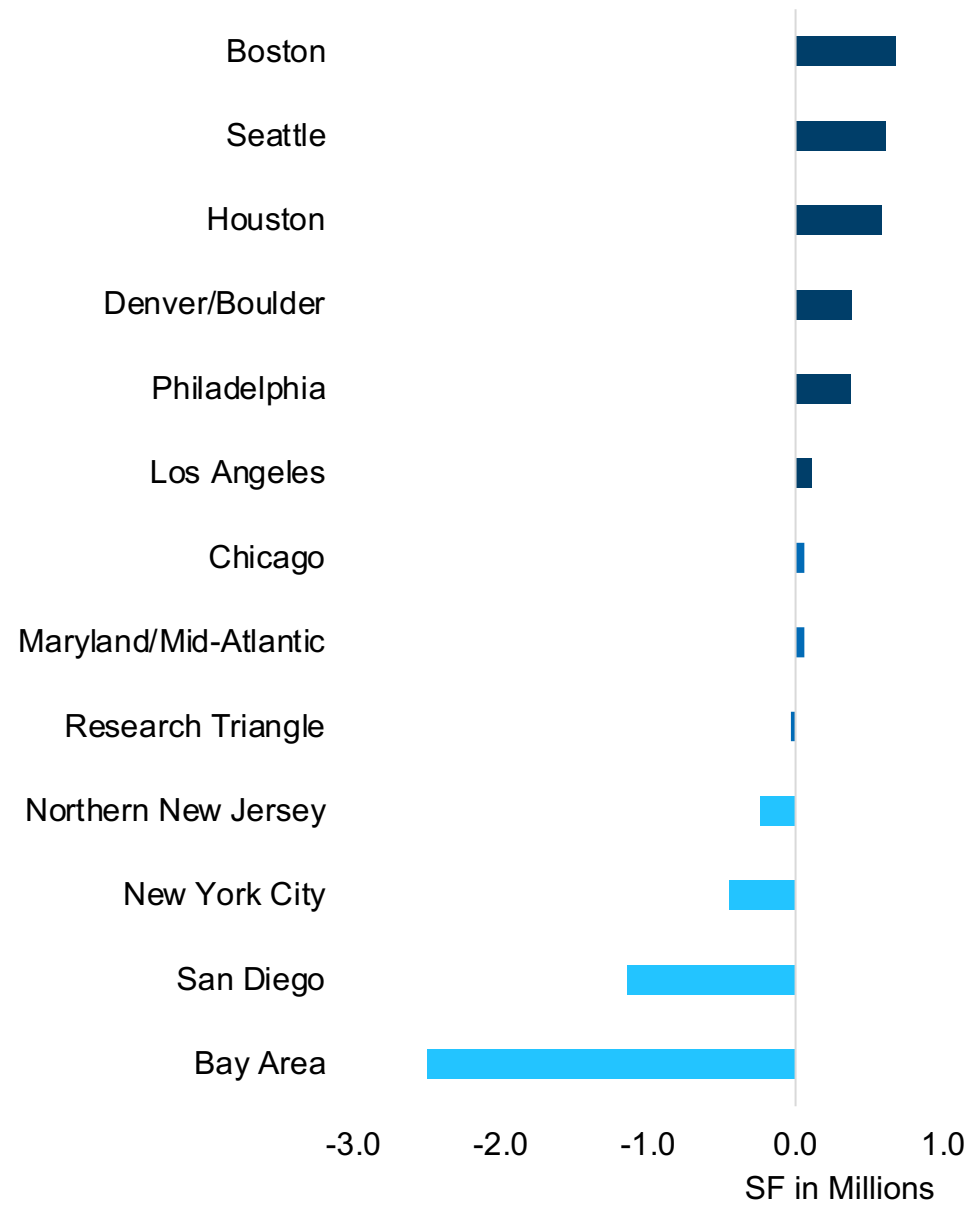


Source: Newmark Research
 Note: Data inclusive of Boston, Bay Area and San Diego only. The Bay Area tenant demand data only includes the Peninsula until 2021

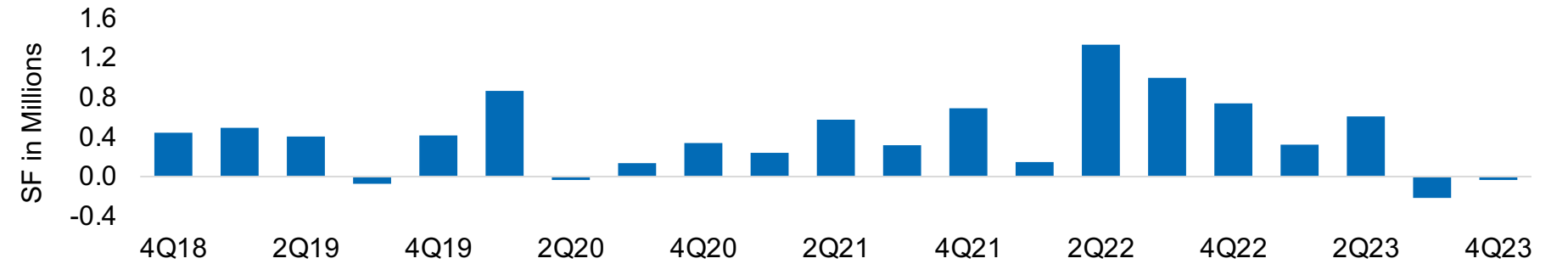
Net Absorption Continues to Abate

Five of the top 13 U.S. life science markets posted negative net absorption in 2023, with the Bay Area and San Diego leading the way. Pre-leasing in new construction drove positive net absorption for the year in Boston; however, occupancy dropped during the latter half of 2023.

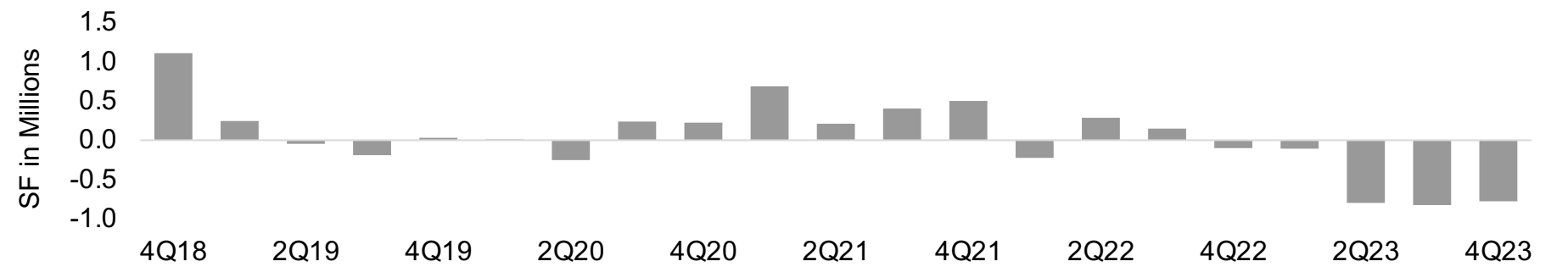
2023 Net Absorption by Market



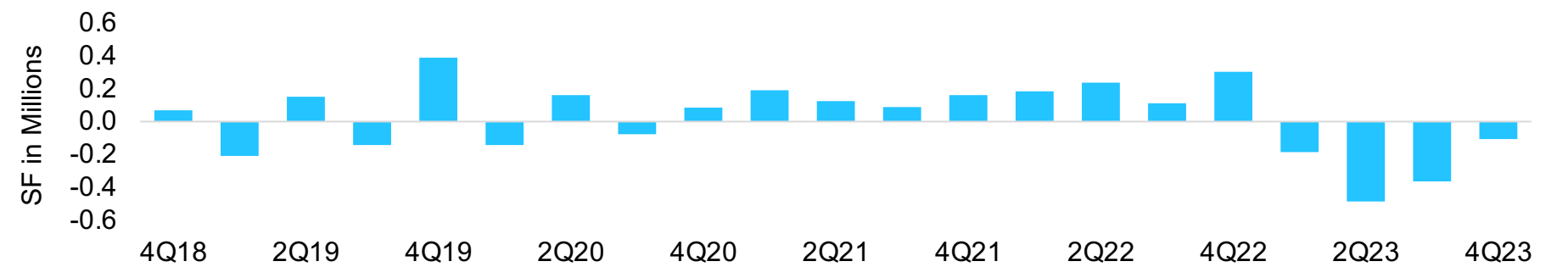
Historical Net Absorption | Boston



Historical Net Absorption | Bay Area



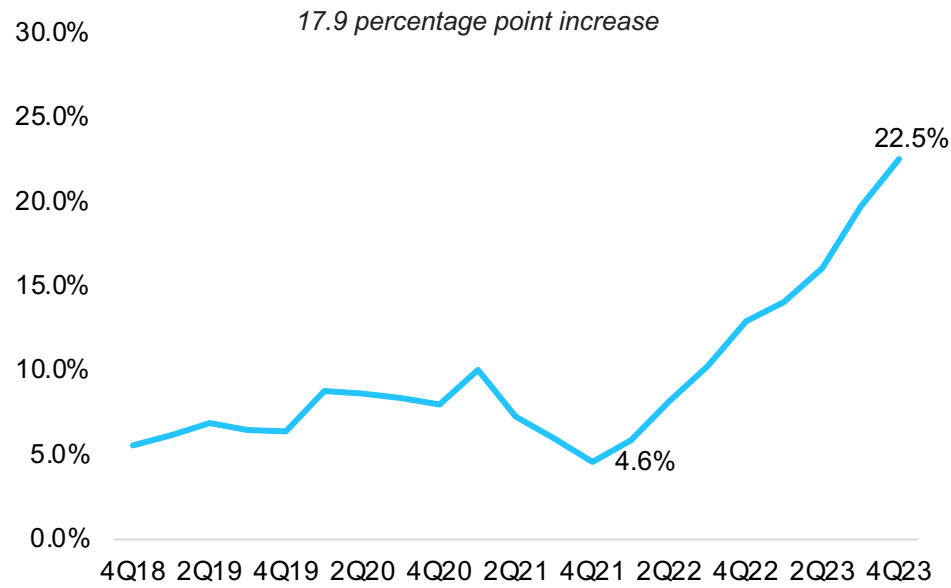
Historical Net Absorption | San Diego



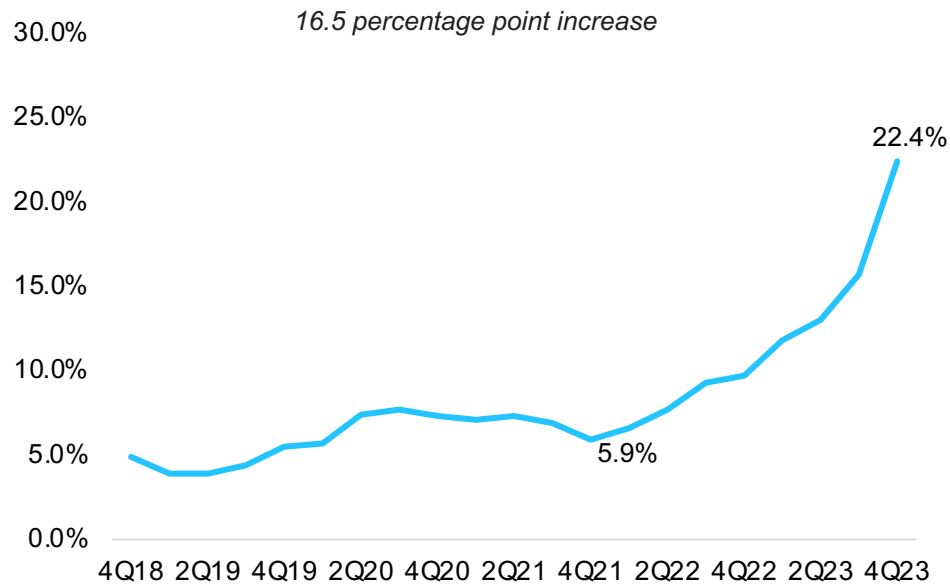
Boston Is Leading the Market Correction

Laboratory availabilities within the top three U.S. life science clusters have been rising precipitously since late-2021 as supply-side pressures and waning demand characterize the sector. Despite nearly doubling over the last five years, pricing growth slowed throughout much of the last 24 months and rent losses have materialized in Boston and the Bay Area.

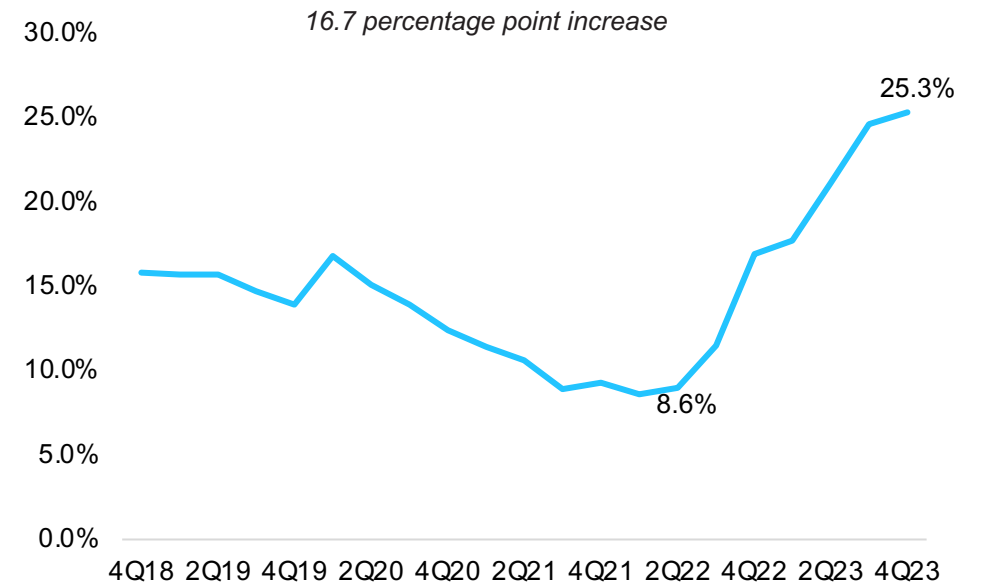
Boston Availability Rate



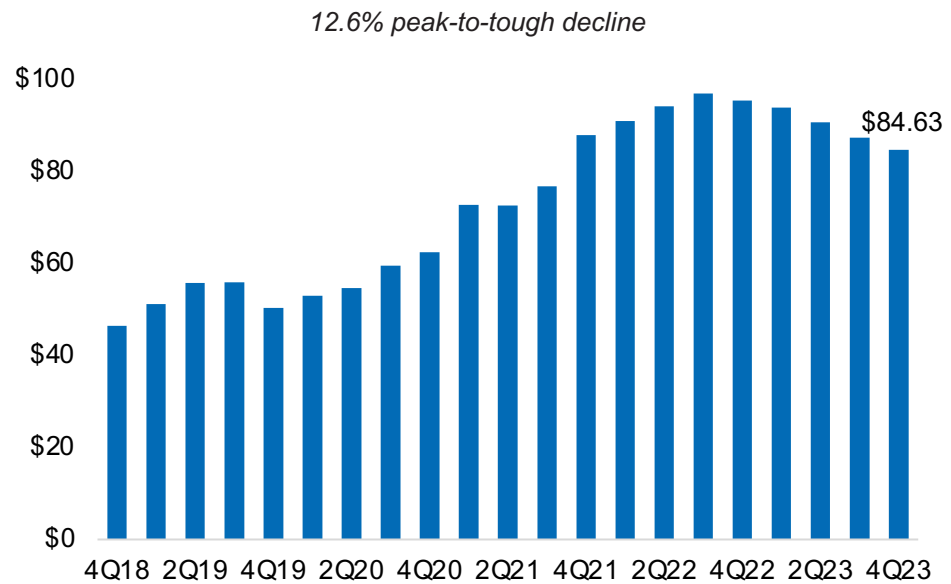
Bay Area Availability Rate



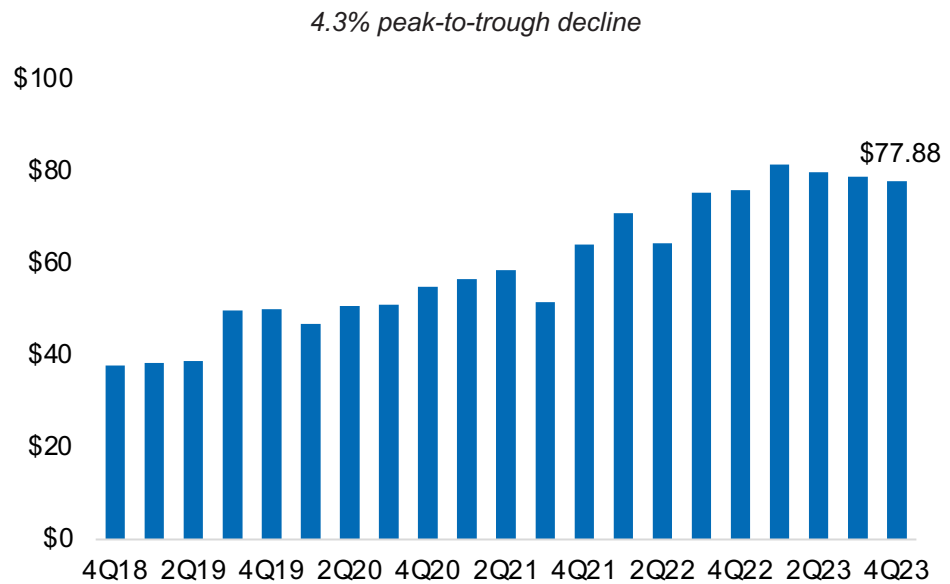
San Diego Availability Rate



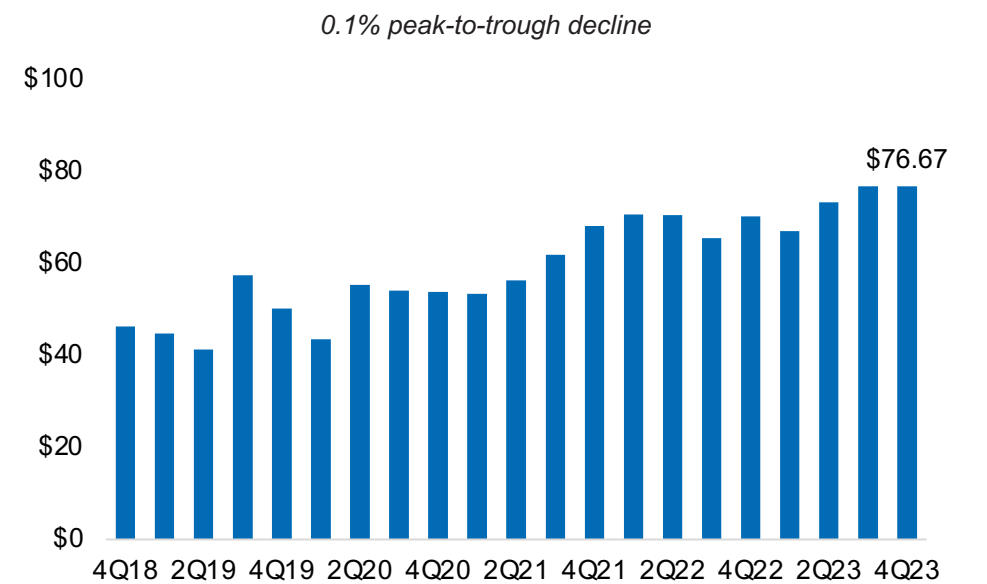
Boston Laboratory Asking Rents (\$/SF)



Bay Area Laboratory Asking Rents (\$/SF)



San Diego Laboratory Asking Rents (\$/SF)

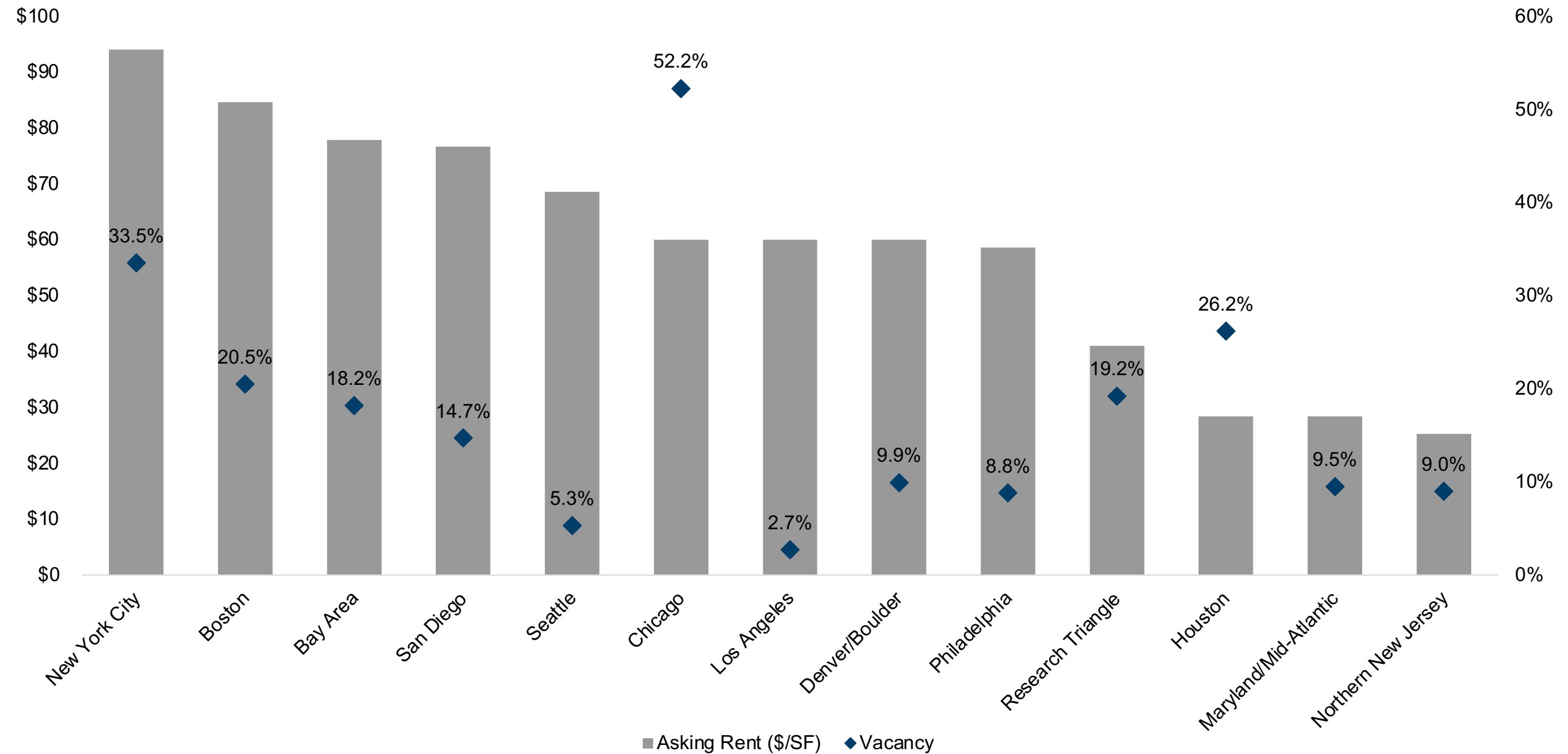


Source: Newmark Research

Asking Rents Are Easing as Vacancies Rise across Most Markets

Most life science markets now boast double-digit vacancy rates as supply and demand continue to diverge. Smaller, more emergent markets, such as Chicago, New York City and Houston, ended 2023 with some of the highest vacancies, while fundamentals are comparatively healthier in Seattle and Philadelphia. Softening fundamentals have also led to lower asking rents in many key markets.

2023 Vacancy Rate and Average Asking Rent by Market

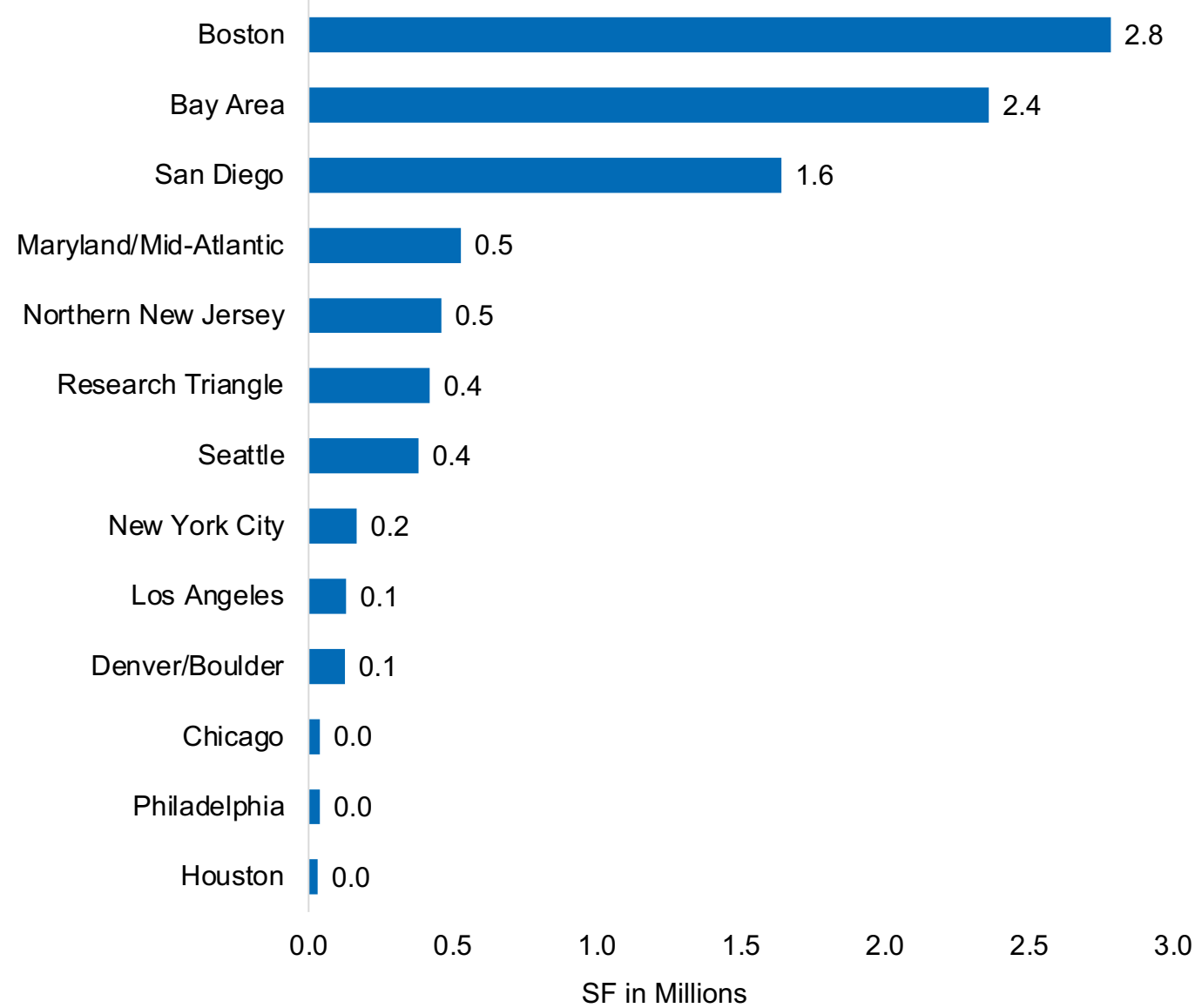


Source: Newmark Research

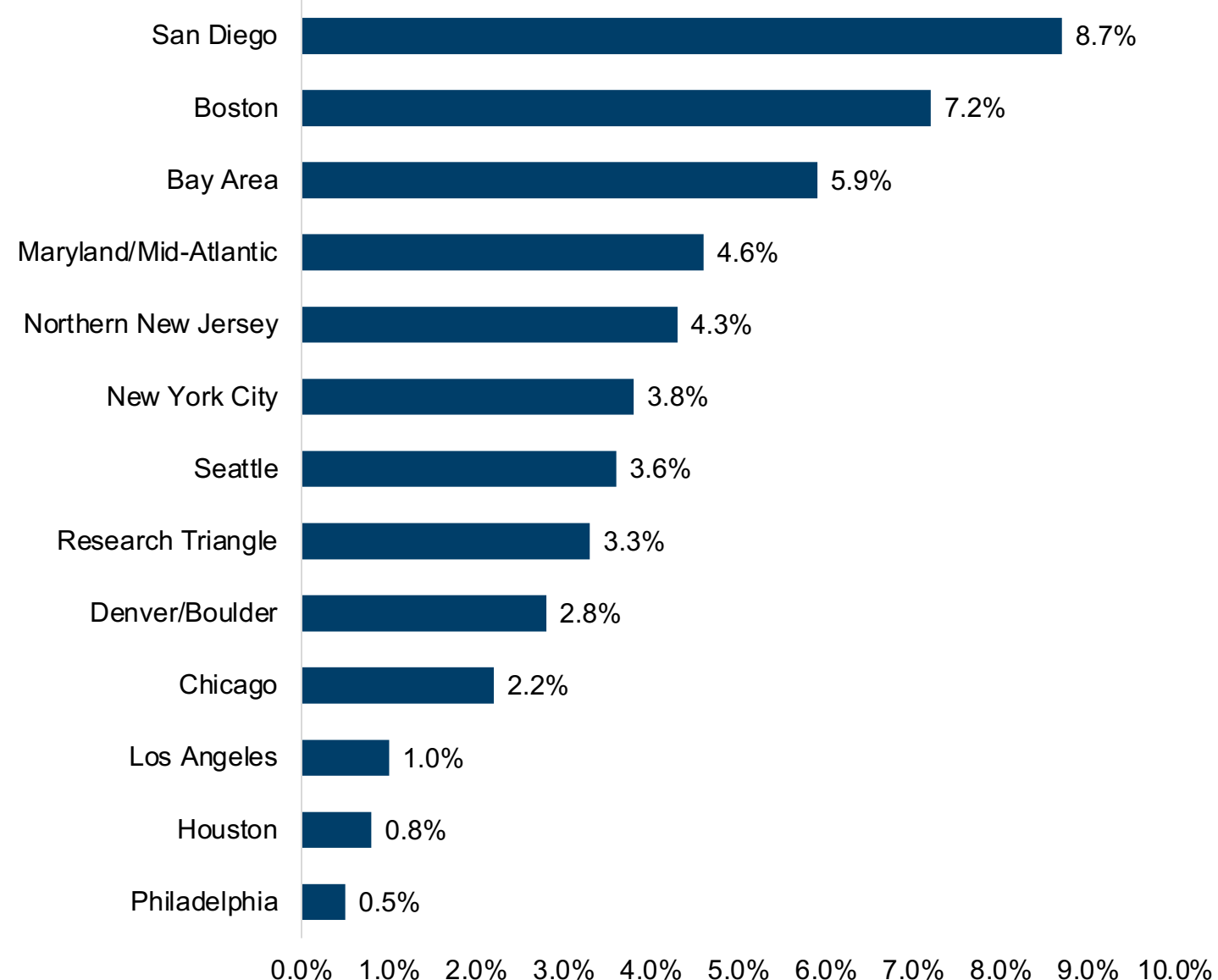
Sublease Availabilities Are Reaching New Heights

Occupiers now have access to more built-out laboratory space than at any point in history, with 9.1 million SF of sublets available as of the fourth quarter of 2023. The top three life science markets account for nearly 75.0% of the U.S. sublease inventory. As a percentage of existing inventory, San Diego tops the list, with a 2023 sublease availability rate of 8.7%.

SF of Available Sublease Space by Market



Sublease Availability Rates by Market

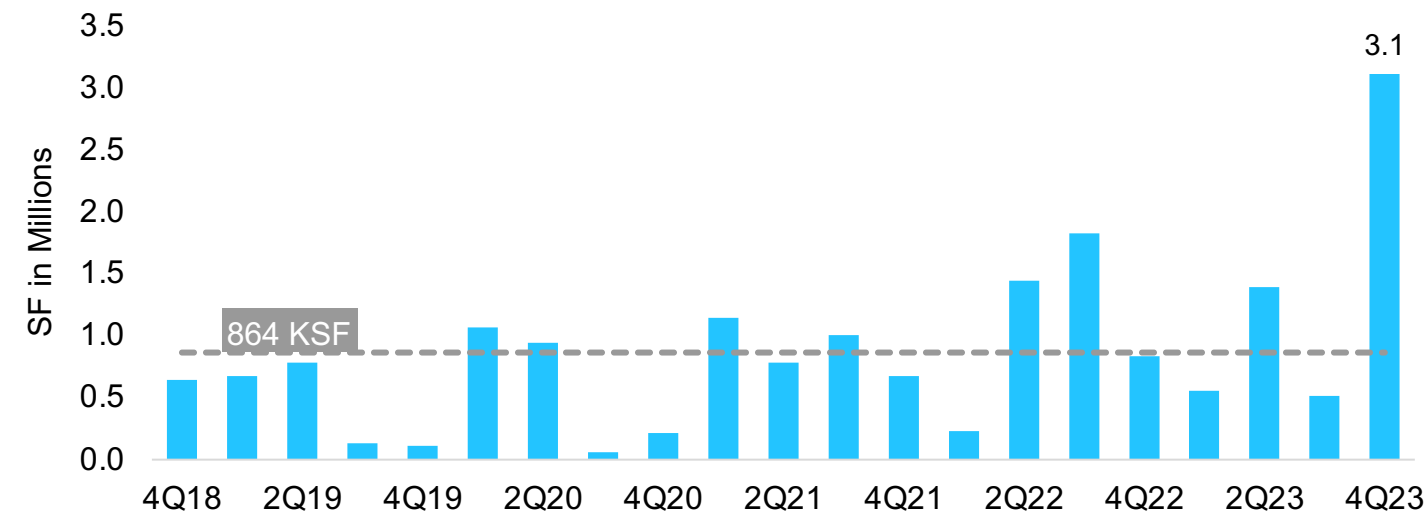


Source: Newmark Research

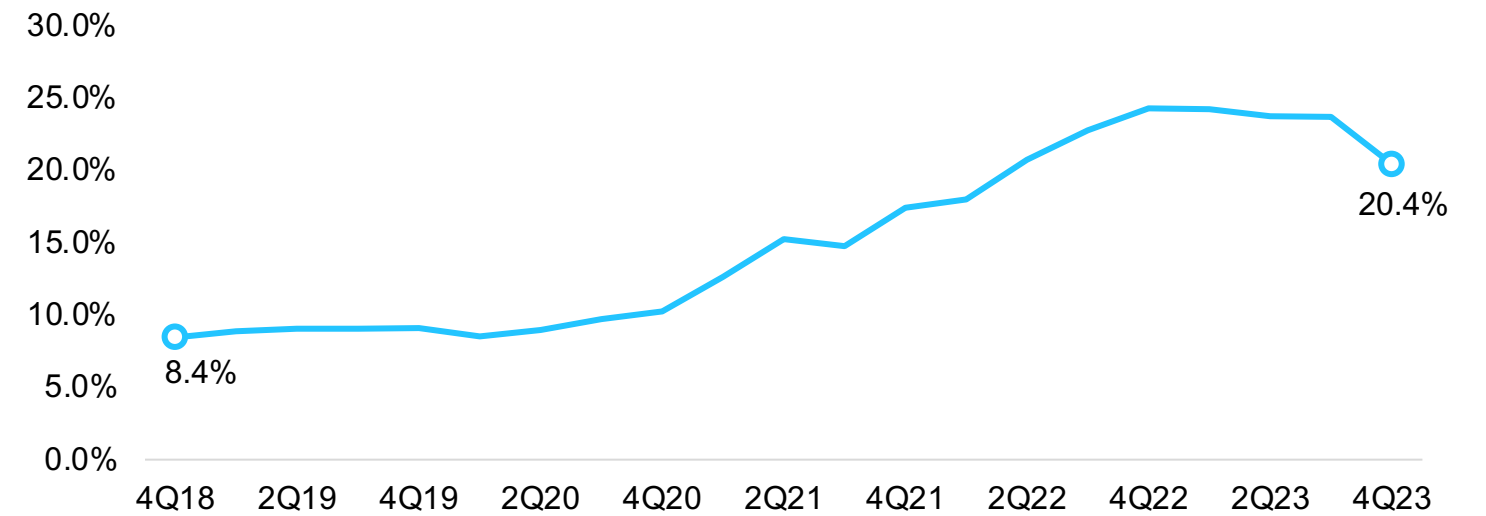
Record Deliveries Continue to Impact Select Markets

In the fourth quarter of 2023, 3.1 million SF of new purpose-built laboratory product delivered across the top three U.S. life science clusters. Future deliveries remain concentrated in these three main markets as well, with Boston, the Bay Area and San Diego accounting for 79.0% of SF currently under construction.

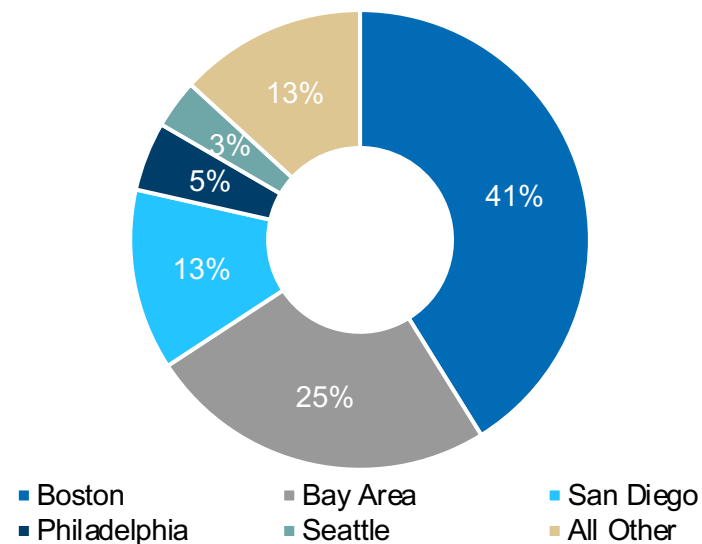
SF of Purpose-Built Laboratory Space Delivered*



SF Under Construction a % of Existing Laboratory Inventory*



Share of SF Under Construction



Key Laboratory Developments



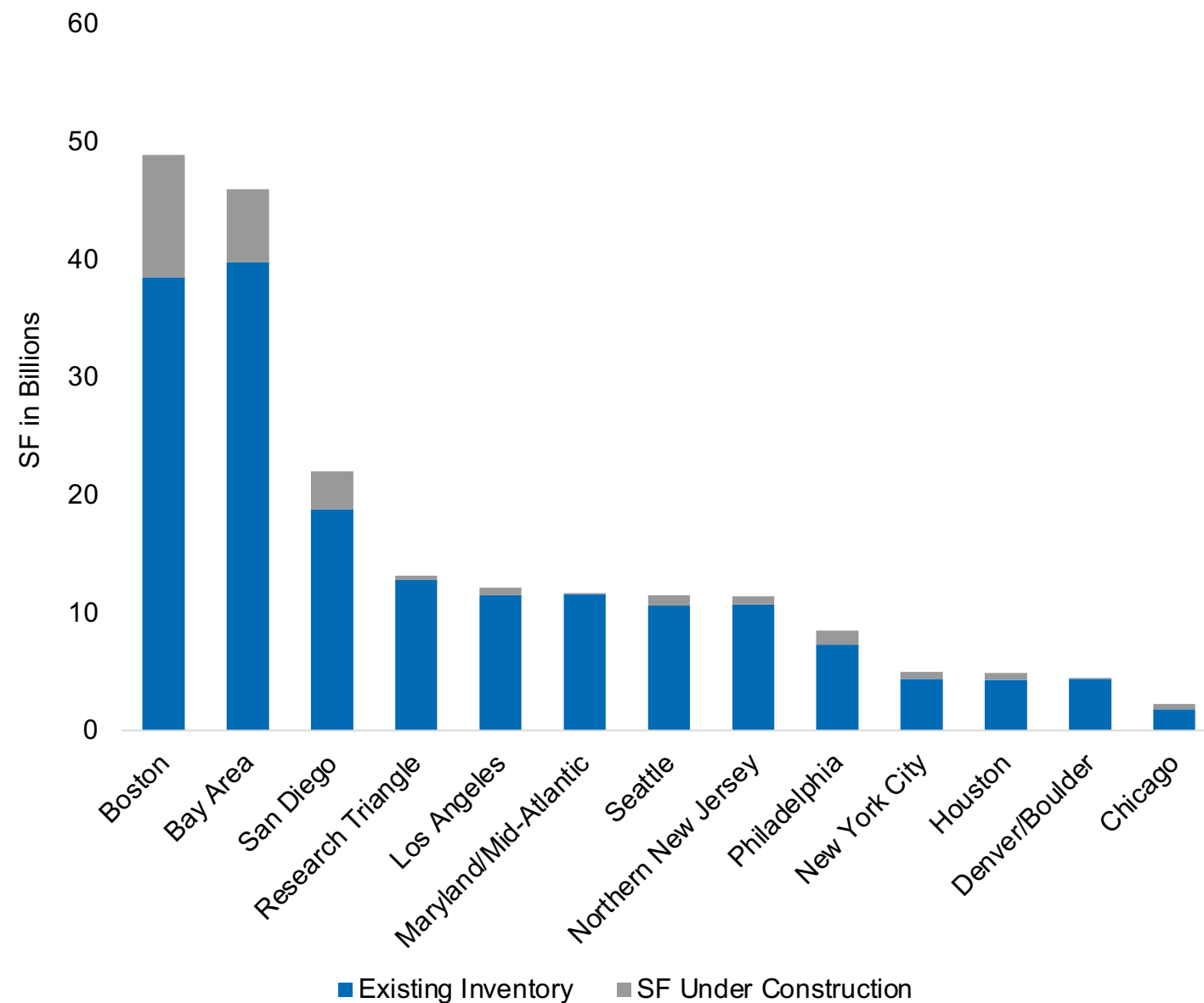
400 Summer St.	188 Assembly Park Dr.	Kilroy Oyster Point	The Landing	Pacific Center
Boston Seaport	Somerville	South San Francisco	Burlingame	Sorrento Mesa
581,538 SF	495,000 SF	865,147 SF	503,500 SF	496,000 SF
WS Development / KKR	BioMed Realty	Kilroy Development	King Street Properties / Helios Real Estate	Sterling Bay
2024	2024	2024	2025	2024

Source: Newmark Research
*Only includes Boston, Bay Area and San Diego

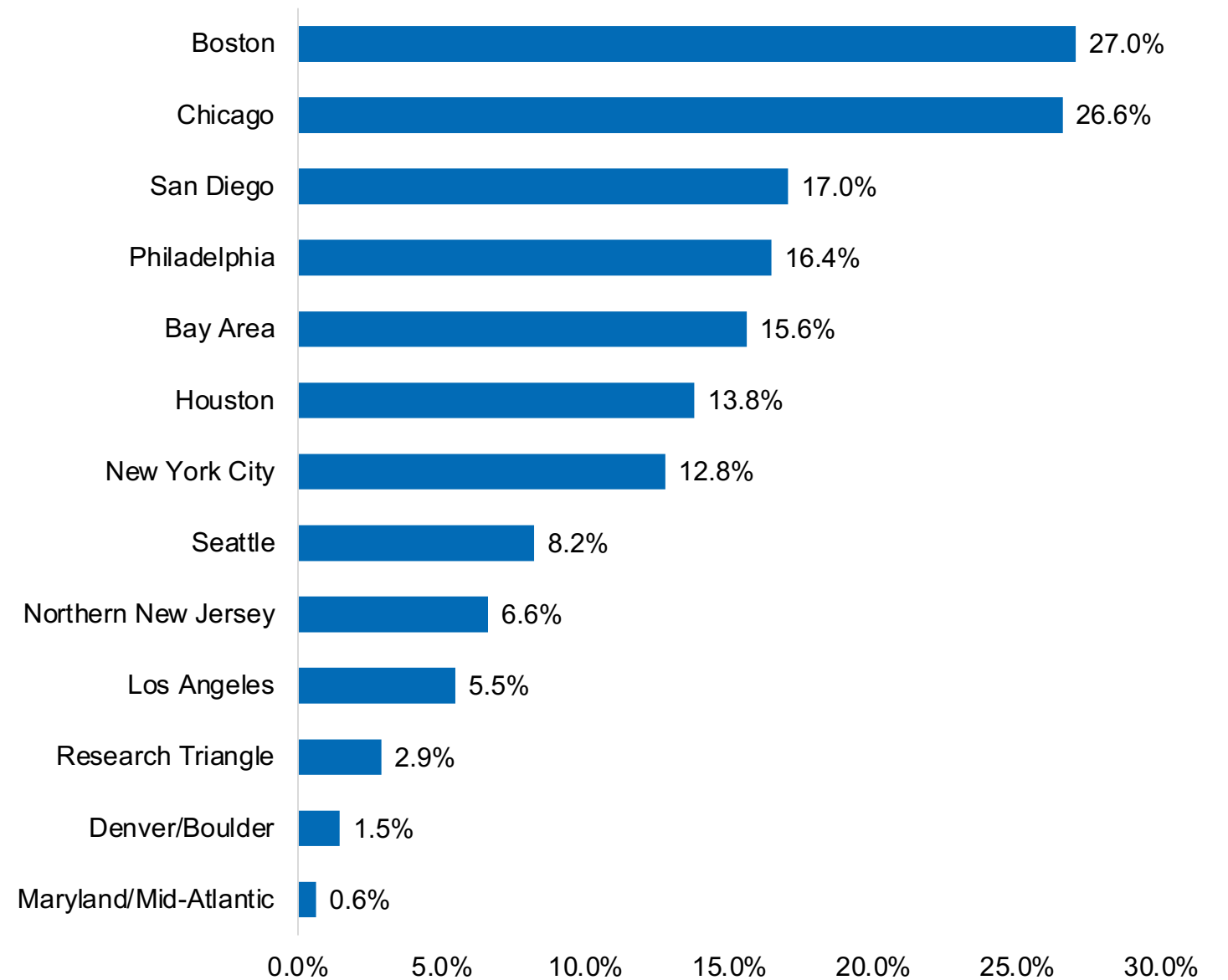
Despite Elevated Deliveries, New Life Science Development Is Abating

As of the fourth quarter of 2023, 25.8 million SF of purpose-built laboratory space was underway within the top 13 life science markets. This represents 17.4% of existing inventory. Boston, the Bay Area and San Diego account for the lion's share of all new construction. Current market fundamentals have led to fewer projects moving forward and new construction starts are normalizing.

Existing Inventory and SF of Purpose-Built Space Under Construction



SF Under Construction a % of Existing Laboratory Inventory



Source: Newmark Research

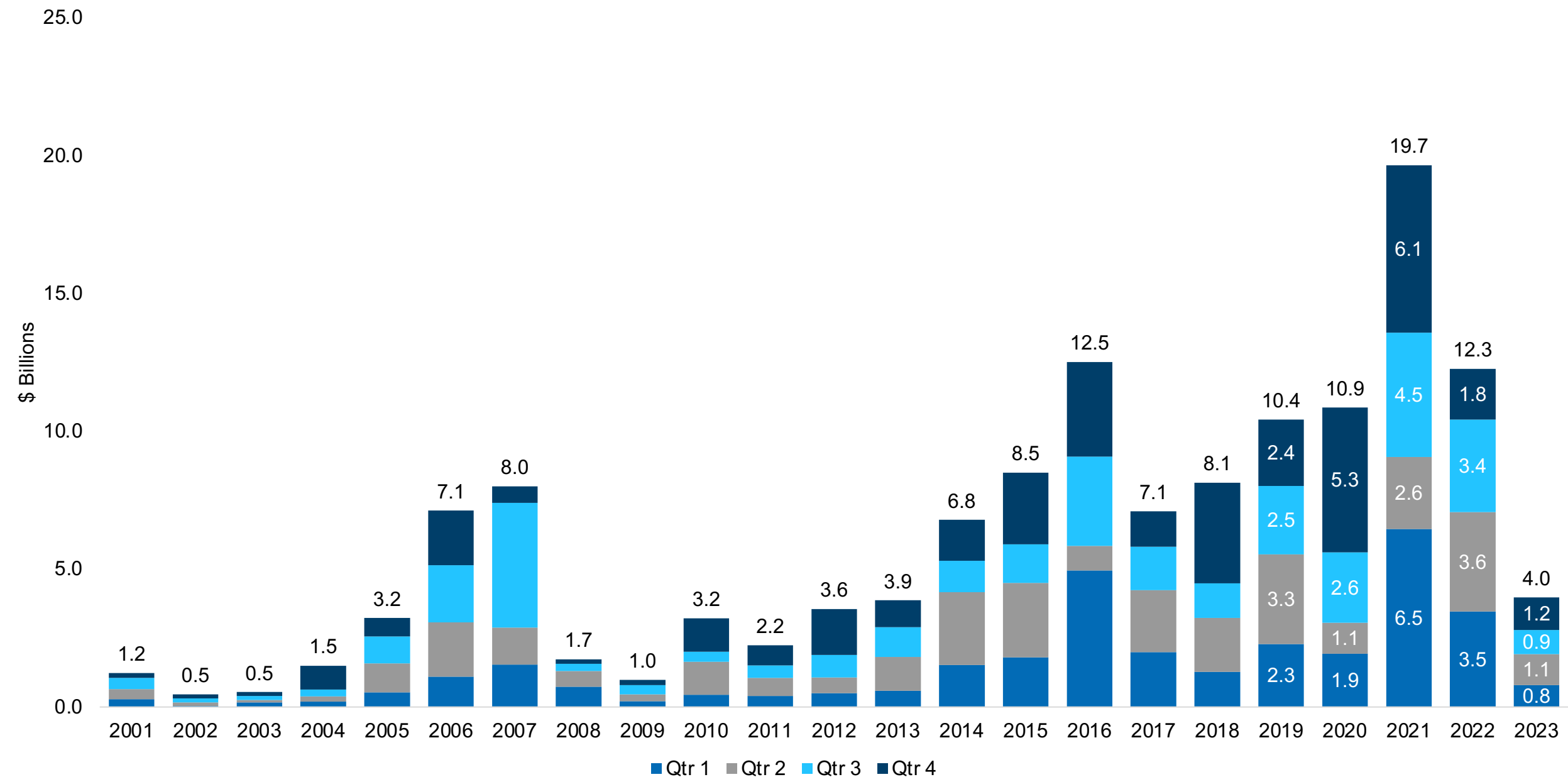
Capital Markets



R&D* Volumes Declined 68% YoY in 2023, Down 54% from 2017 to 2019 Average

The R&D/life science sector attracted significant investor interest in 2021, driving sales volume to \$19.7 billion. There was simply not enough product to sustain this pace in early 2022, resulting in slowing activity still well above pre-pandemic levels. By the middle of the year, rising interest rates and greater concern about new lab supply in several markets contributed to weakening momentum. This culminated in weak sales in the fourth quarter of 2022, which has since carried through 2023.

R&D Investment Sales

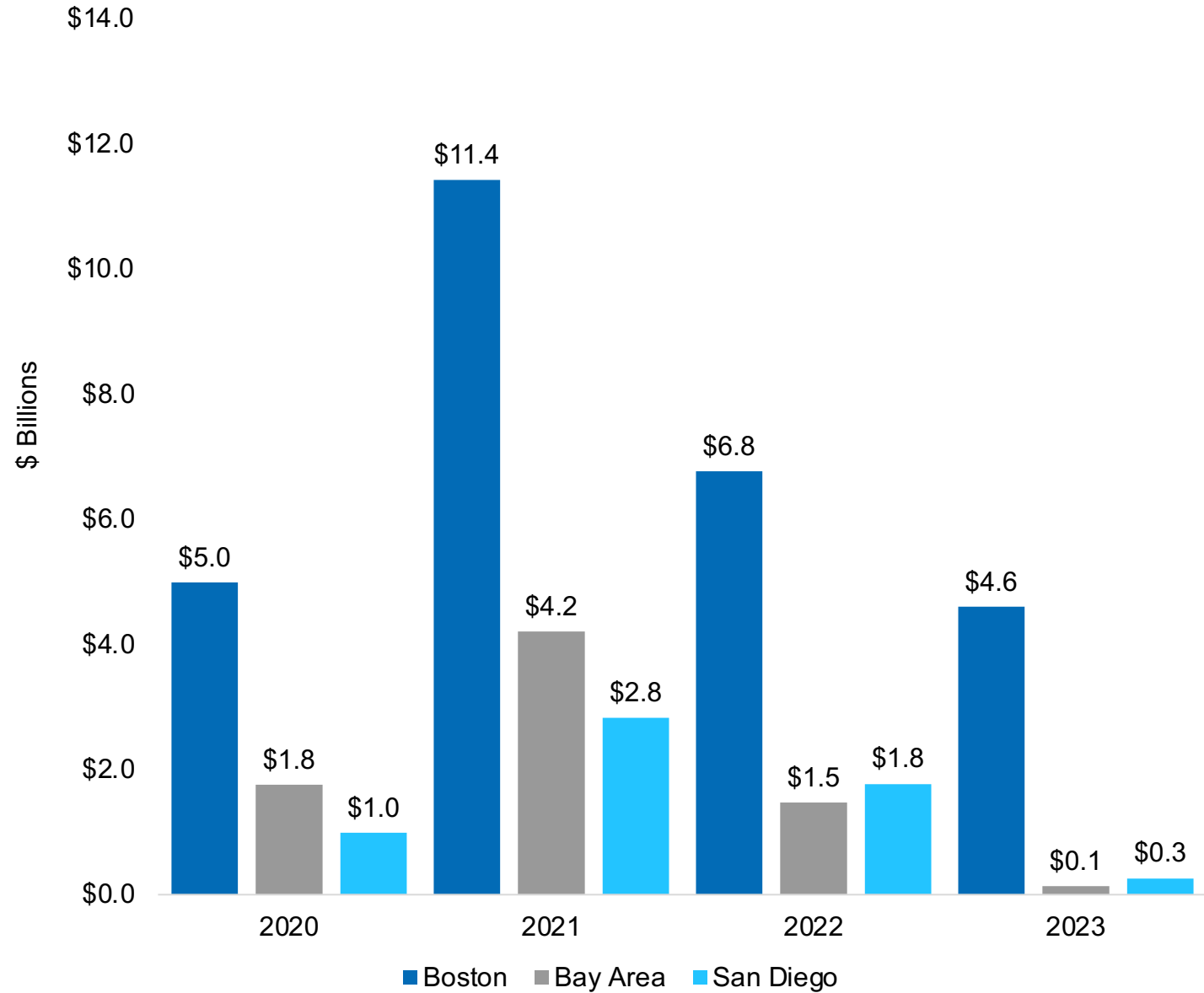


Source: RCA, Newmark Research as of 2/26/2024
 *We use the R&D property subtype as a proxy for Life Science

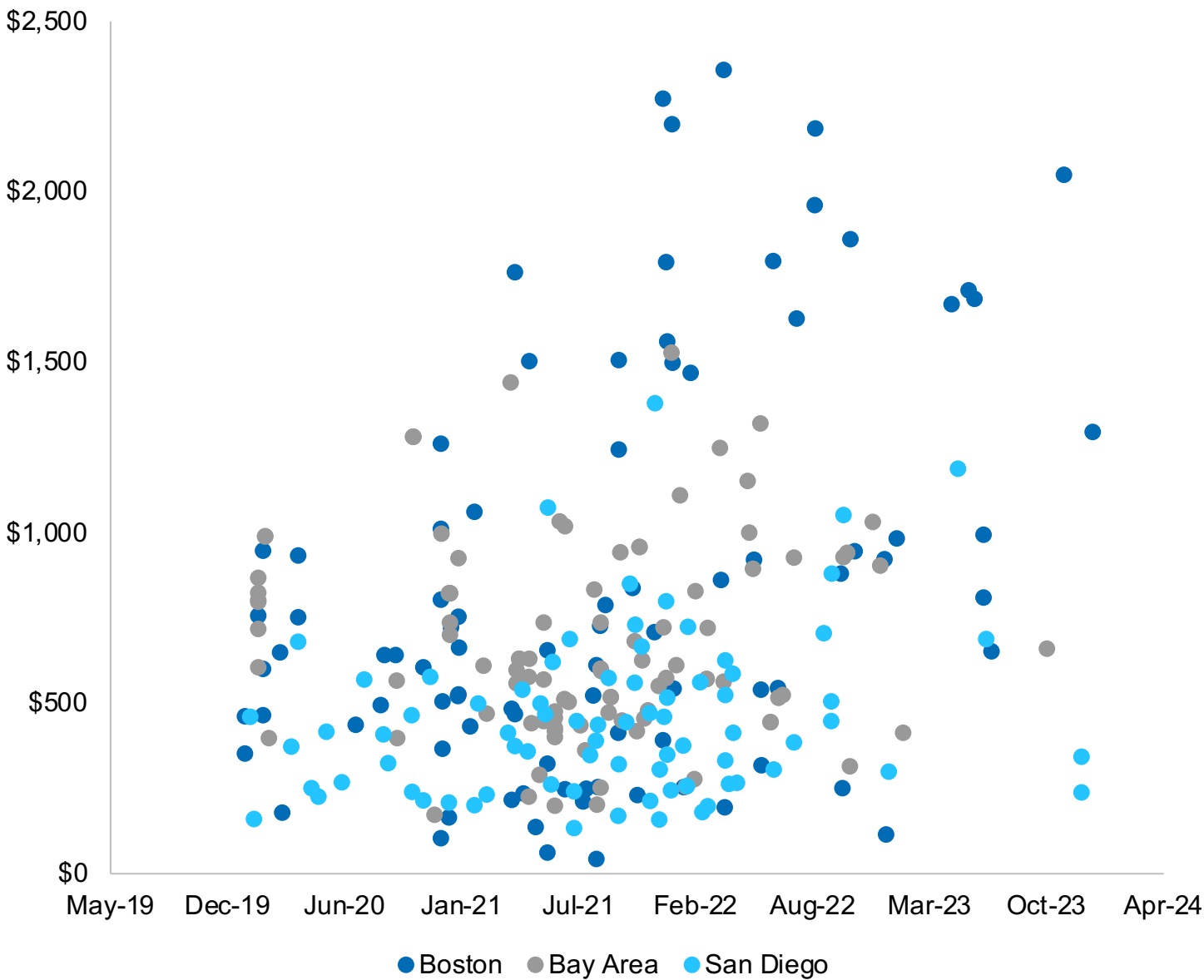
Select Owners Have Been Recapitalizing or Divesting Non-Core Assets

According to proprietary analysis from Newmark, \$41.2 billion in life science-related assets changed hands in the nation's top three biotech hubs from 2020 to 2023, with 2021 representing the height of activity. Those transacting over the last year have focused on acquisitions in key Boston submarkets, such as the Seaport and East Cambridge. Average cap rates across the top three markets have increased by at least 100 basis points since 2021.

Total Life Science-Related Investment Sales: Top 3 Markets



\$/SF of Life Science Sale Transactions: Top 3 Markets

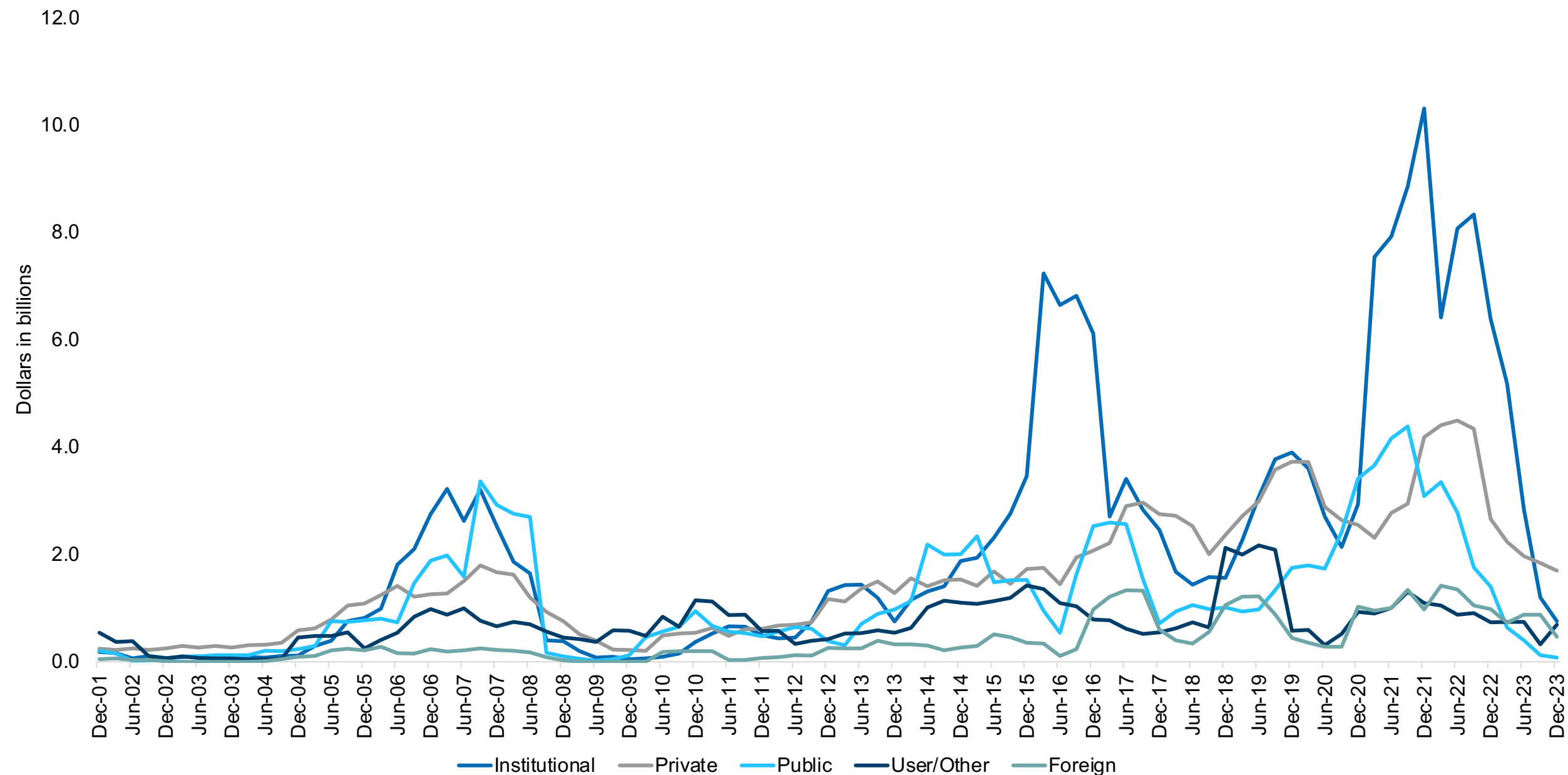


Source: Real Capital Analytics, Newmark Research

Acquisitions Have Declined across Investor Groups in Recent Quarters

Institutional investors and REITs drove the market to its 2021 peak, though private and foreign investors also contributed. By equal measure, institutional investors and REITs have also driven the market to its current quiescence, with institutional and REIT acquisitions down 88% and 94% year over year, respectively in 2023. Private capital has been less impacted, down 36% year over year in 2023. As a result, the private capital share of investment rose to 43% from just 22% in 2022.

R&D* Acquisition Volume, Rolling 4-Quarter



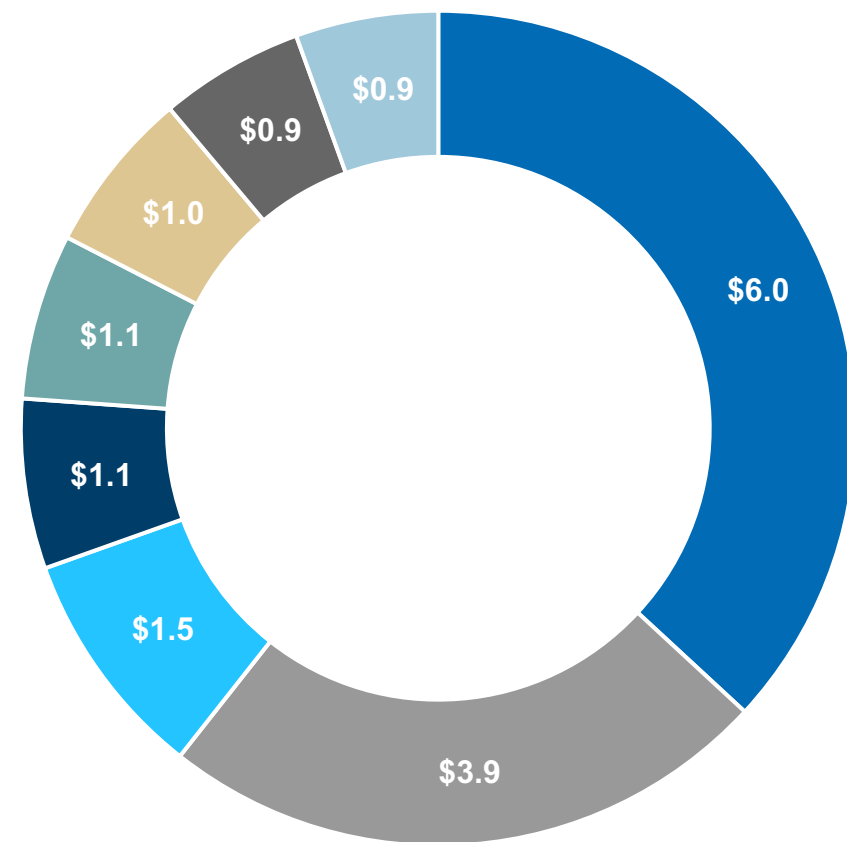
Source: RCA, Newmark Research as of 2/26/2024
 *We use the R&D property subtype as a proxy for Life Science

Top Life Science Owners Dominate Acquisitions in Key Markets

Since 2020, top owners represent 46.4% of all acquisitions in Boston, the Bay Area and San Diego. Select life science owners have begun to divest assets to raise capital. Phase 3 Real Estate Partners, Norges Bank, TPG Real Estate (Alloy) and Bain Capital represent some of the more active buyers in 2023.

Life Science Investments from Select Top Owners: Boston, Bay Area, San Diego

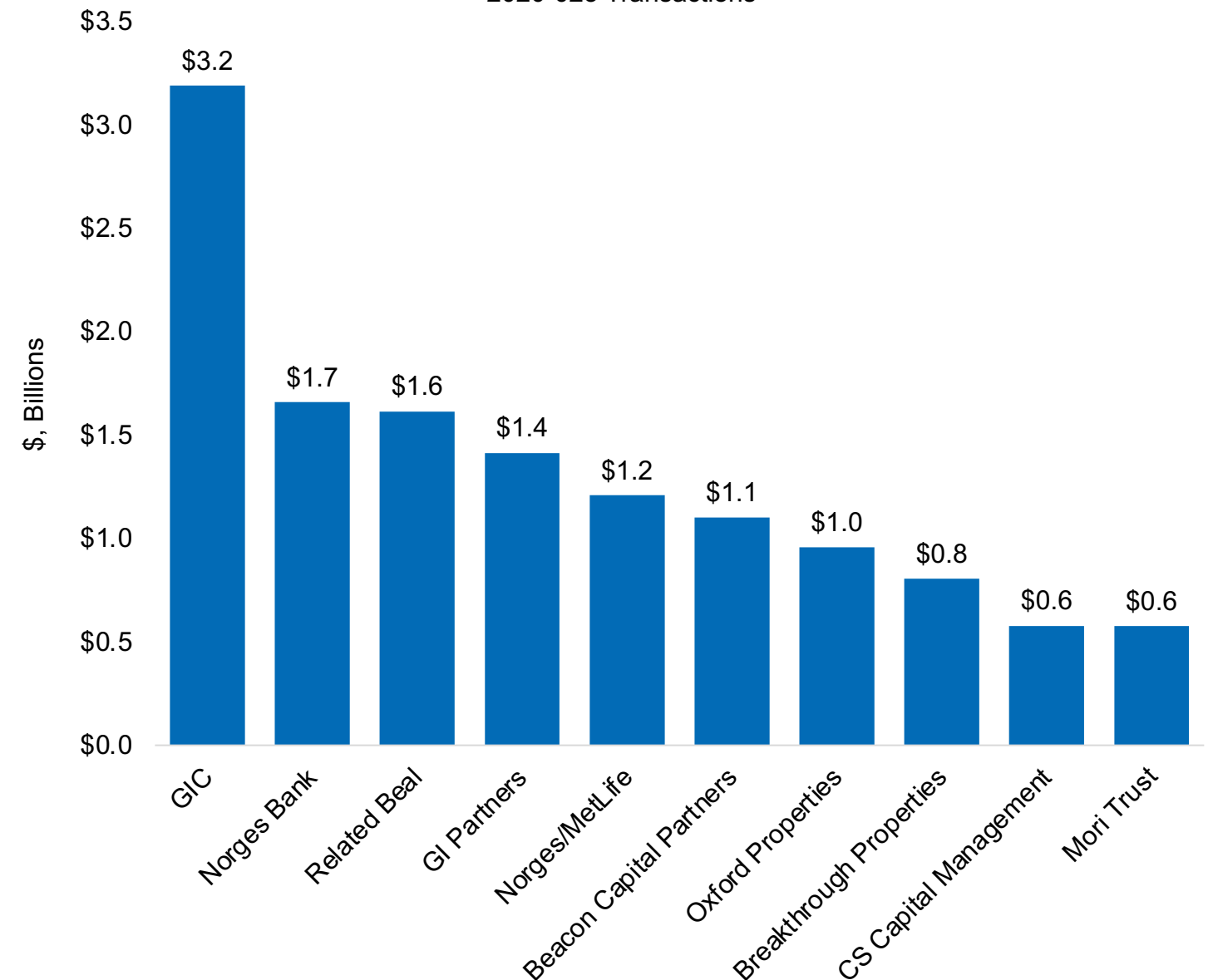
2020-2023 Transactions



- Alexandria Real Estate Equities
- Alloy Properties/TPG
- Longfellow Real Estate Partners
- Healthpeak Properties
- Blackstone BioMed
- Ventas
- Phase 3 Real Estate Partners
- IQHQ

Non-Top Owner Life Science Investment: Boston, Bay Area, San Diego

2020-2023 Transactions

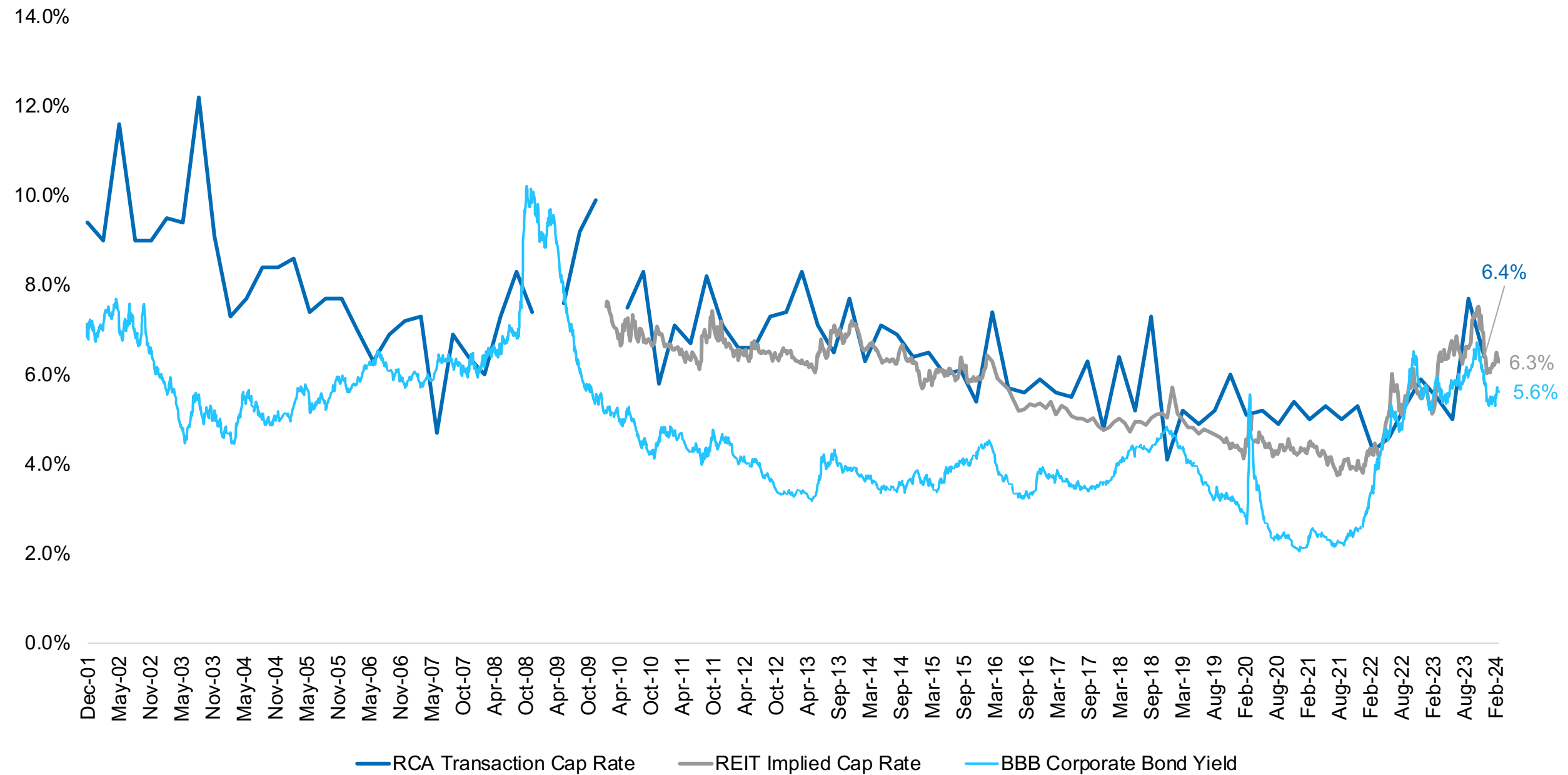


Source: Real Capital Analytics, Newmark Research

Life Science Cap Rates Have Risen Significantly

The spread to BBB corporate bond yields, a proxy for the cost of low leverage, fixed-rate debt, is modestly positive but extremely tight compared to historical averages. This will continue to place upward pressure on cap rates in public and private markets.

R&D* / Life Science Cap Rates

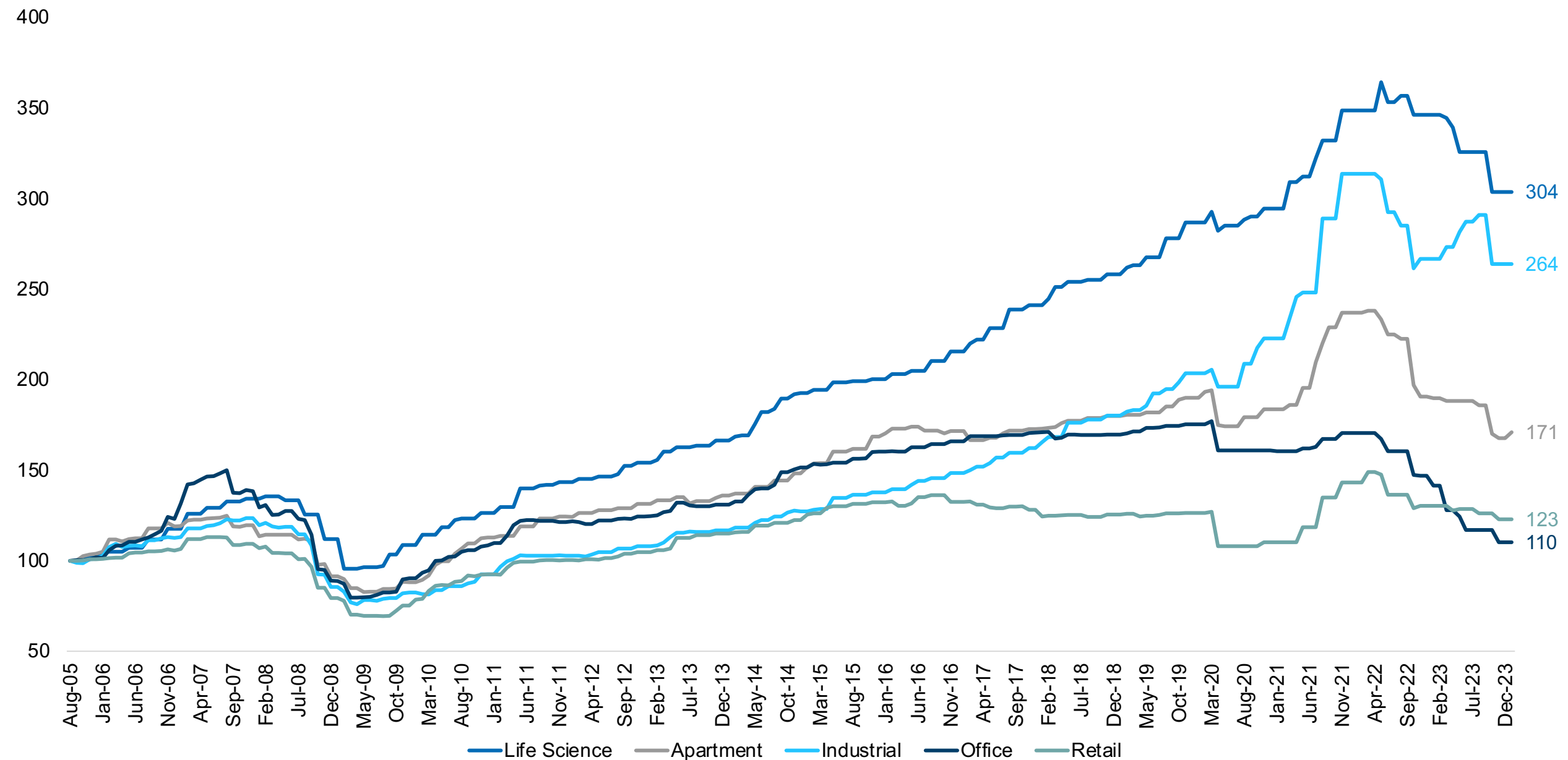


Source: RCA, Green Street, Ice Data Indices, LLC, Newmark Research as of 2/26/2024
 *We use the R&D property subtype as a proxy for Life Science

Life Science Has Outperformed All Other Property Types Since 2008

From 2019 to the post-pandemic peak, life science outperformed all sectors, with the exception of industrial, up 27.1% compared with 54.1% for industrial. Life science values are now down 16.6% from the peak, which is a better showing compared with all other property types save industrial. While this augurs poorly for the returns of investors who entered at the top of the market, these price declines are unlikely to foment the kinds of debt issues widely projected for the office and multifamily sectors.

Green Street Commercial Property Price Index (Aug 2005 = 100)

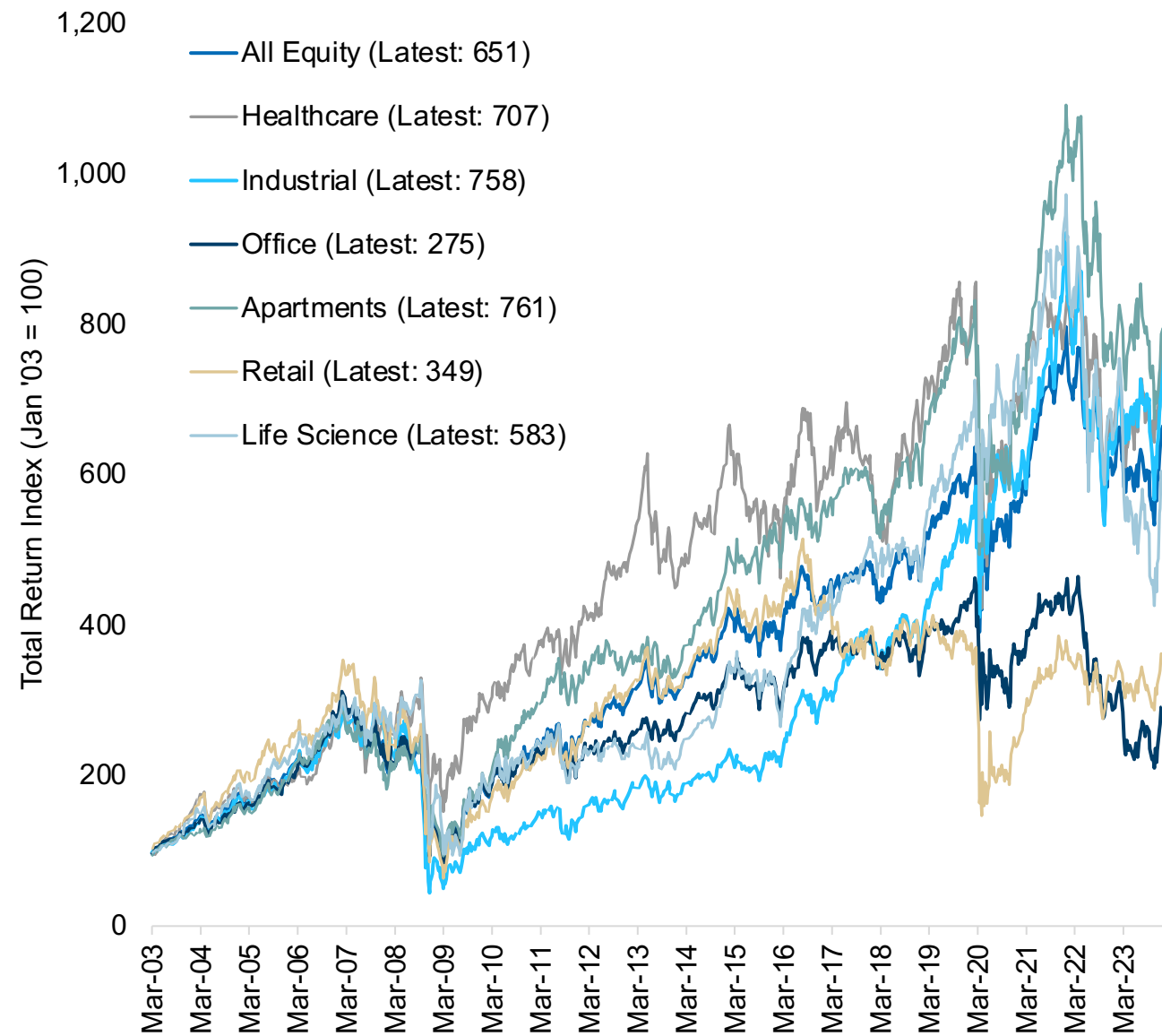


Source: Green Street, Newmark Research as of 2/26/2024

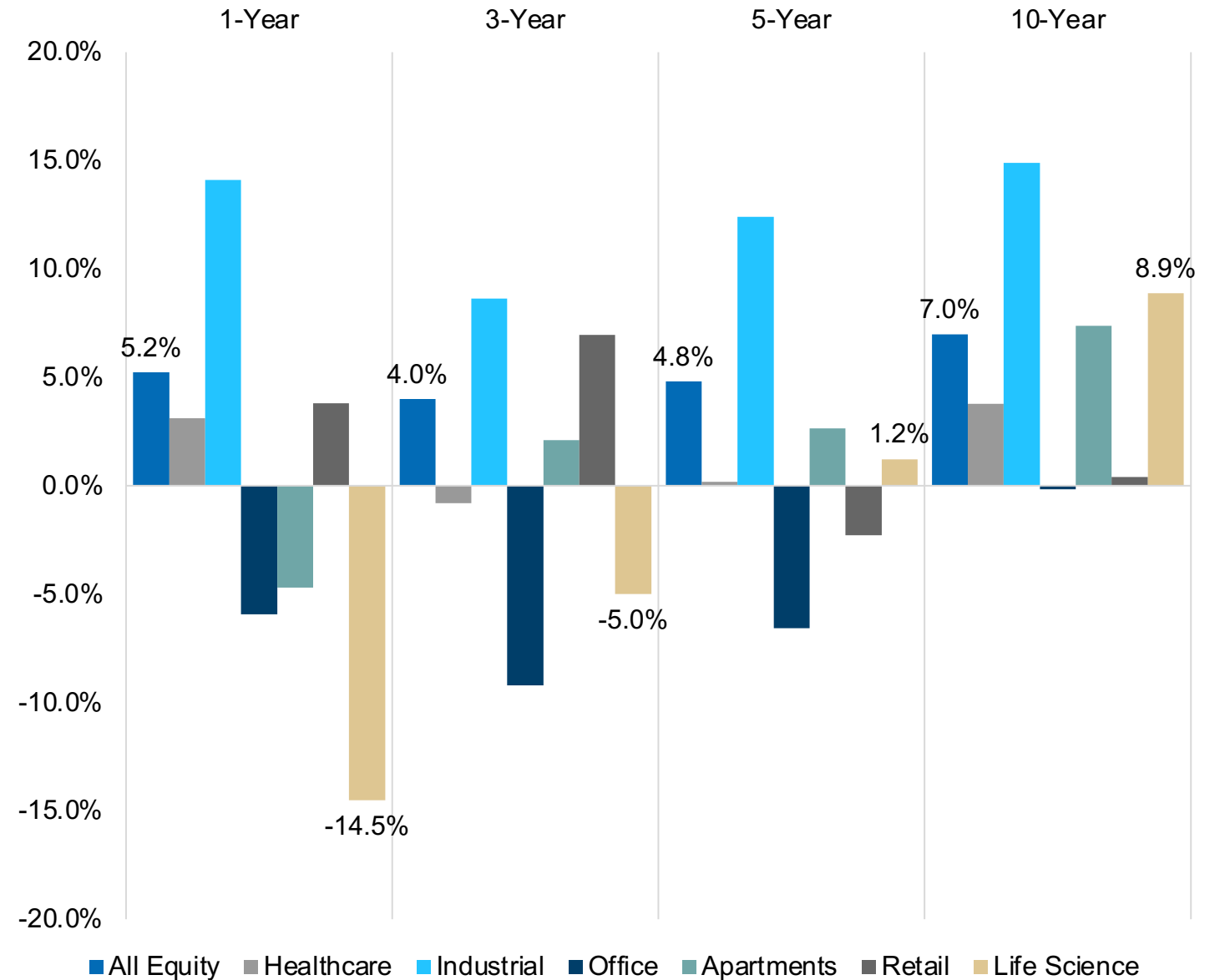
Life Science REITs Have Produced Long-Term Performance Despite Recent Sell-Off

The life science sector delivered significant outperformance before peaking in December 2021. Since then, the sector has underperformed owing to a combination of high interest rate risk stemming from extreme valuation (low cap rates) and investor concern around rising supply, market concentration and the implosion of VC finance (ex-AI).

REIT Total Return



REIT Total Return CAGR

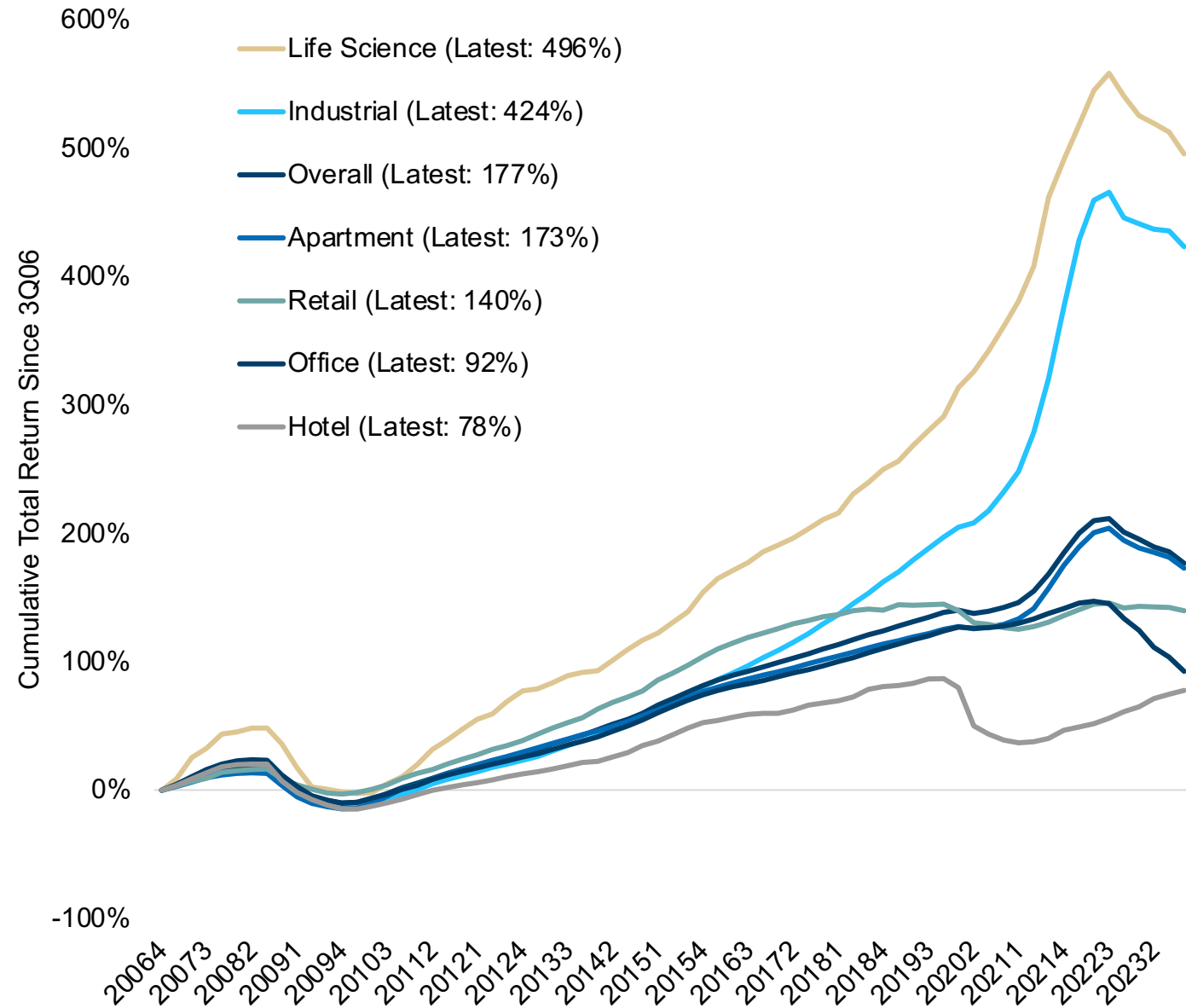


Source: Bloomberg; Moody's Analytics Calculated, Newmark Research as of 3/6/2024
 Note: Alexandria Real Estate Equities used to represent life science REIT performance.

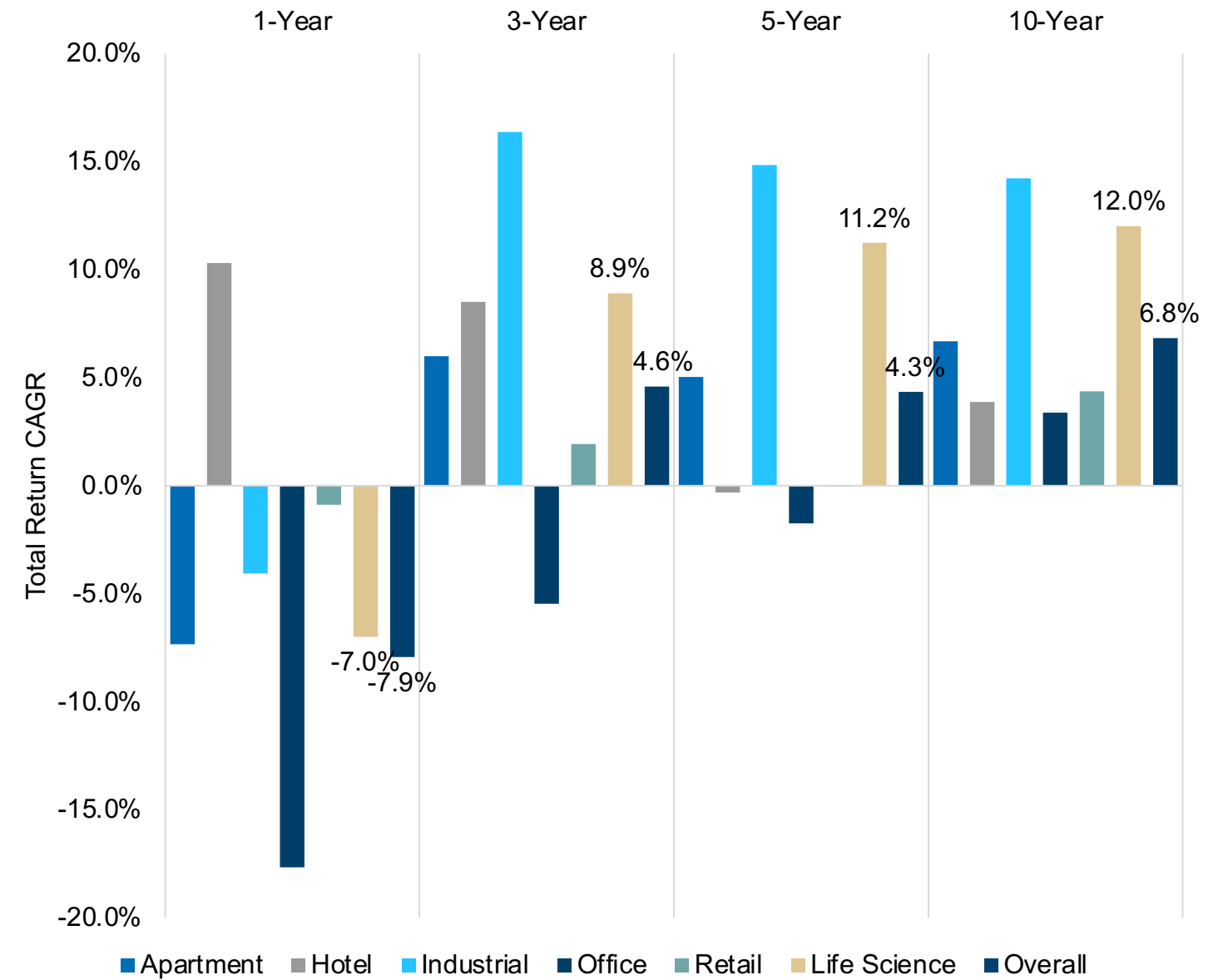
Private Market Returns Second Only to Industrial Over Last 10 Years

Life science has generated negative total returns for the last five quarters, though it is not alone in this. The reduction in values remains mild compared with other benchmarks, suggesting that private fund marks will see further devaluation.

NCREIF Life Science Sector Has Outperformed All Other Since 2006



Only Industrial Has Outperformed in Last 10 Years, Returns Softened in TTM



Source: NCREIF, Newmark Research as of 3/6/2024

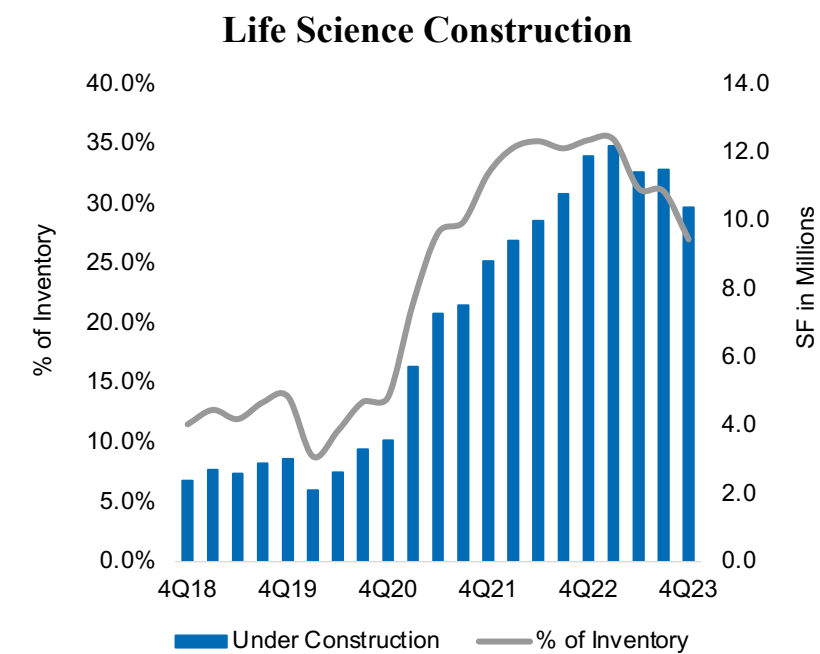
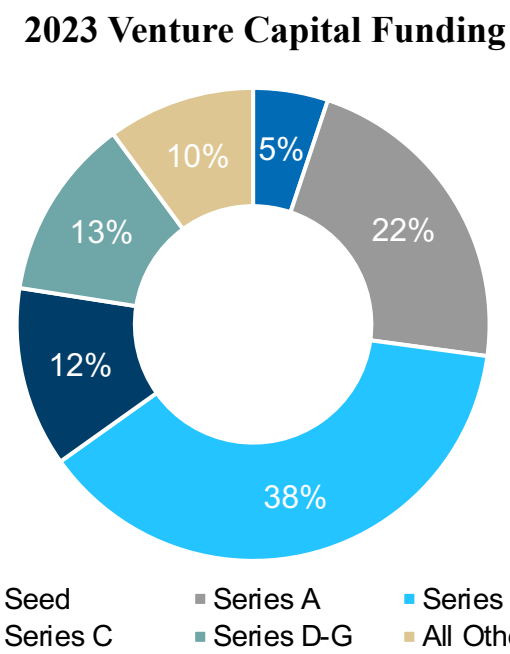
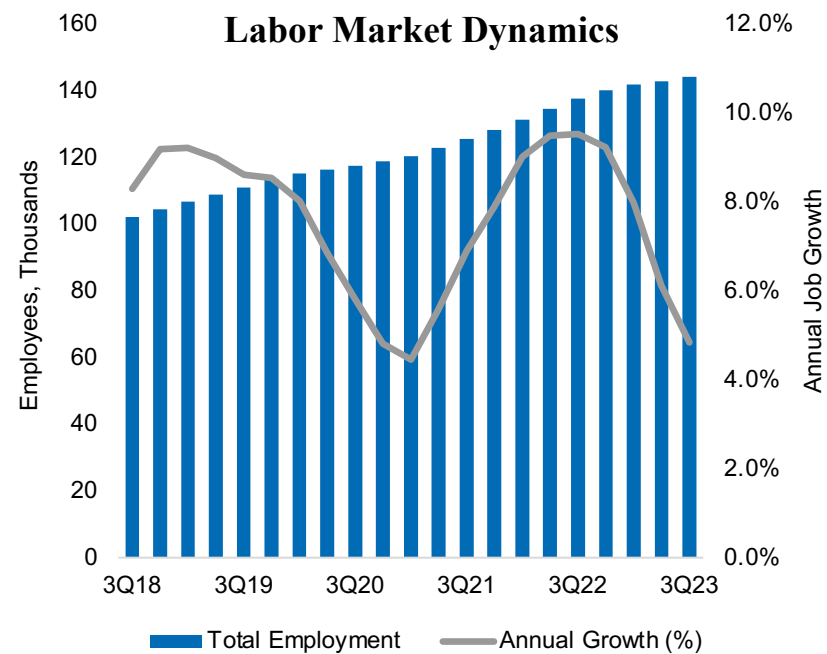
YEAR-END 2023 U.S. LIFE SCIENCE MARKET OVERVIEW

Life Science Market Profiles



Boston

- Though leasing activity gained some momentum, annual totals have reached a five-year low in Greater Boston. Tenant requirements have also fallen to 1.5 million SF as the market continues to stabilize from pandemic-era hyper-growth.
- Roughly 2.7 million SF of converted and purpose-built laboratory product came on line during the second half of 2023. Greater Boston's inventory is nearing 39.0 million SF.
- Despite current and near-term challenges, cautious optimism is starting to return to Greater Boston's life science sector. A more favorable interest rate environment bodes well for growth within this sector and will likely lead to more movement in the capital markets.



Year-End Stats

- 38.4 MSF** Total Inventory
- 10.3 MSF** Under Construction
- 682K SF** Year-to-date Net Absorption
- 20.5%** Vacancy Rate
- \$84.63/SF** Asking Rent (NNN)

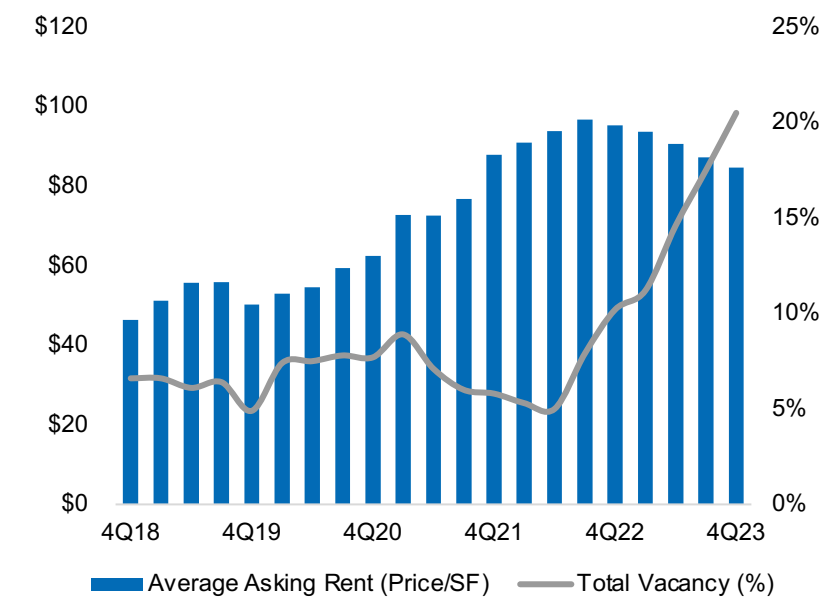
Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
Novo Nordisk	60 Sylvan Rd., Waltham	West – Route 128	Direct Lease	165,940
BPGbio	300 Third Avenue, Waltham	West – Route 128	Direct Lease	70,000
Alexion Pharmaceuticals	100 Binney St., Cambridge	East Cambridge	Sublease	60,000

Select Sale Transactions

Building / Address	Submarket	Sale Price	Price/SF	Square Feet
290 & 300 Binney St, Cambridge*	East Cambridge	\$1.7B	\$2,049	810,000
640 Memorial Dr, Cambridge	Mid Cambridge	Undisclosed	Undisclosed	242,477
100 Beaver St, Waltham	West – Route 128	\$46.2M	\$561	82,330

Asking Rent and Vacancy

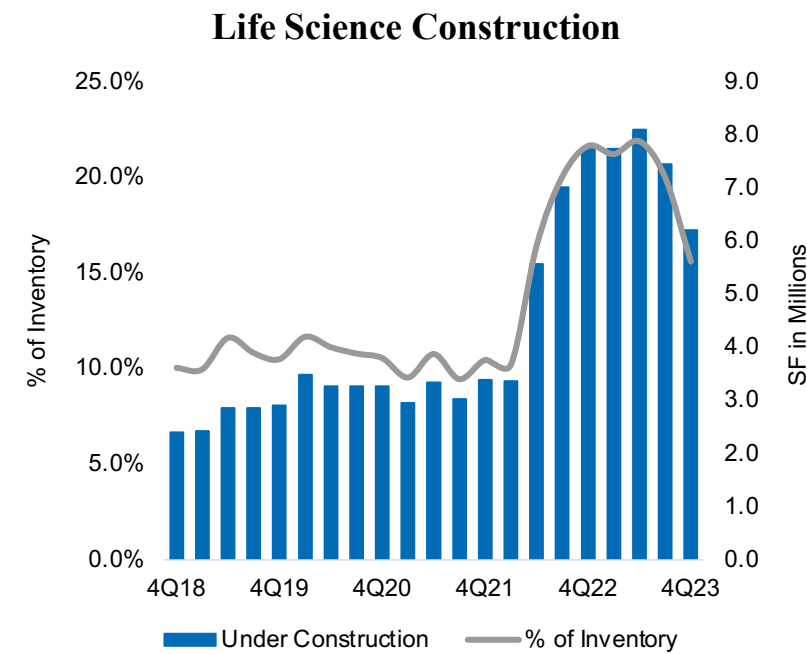
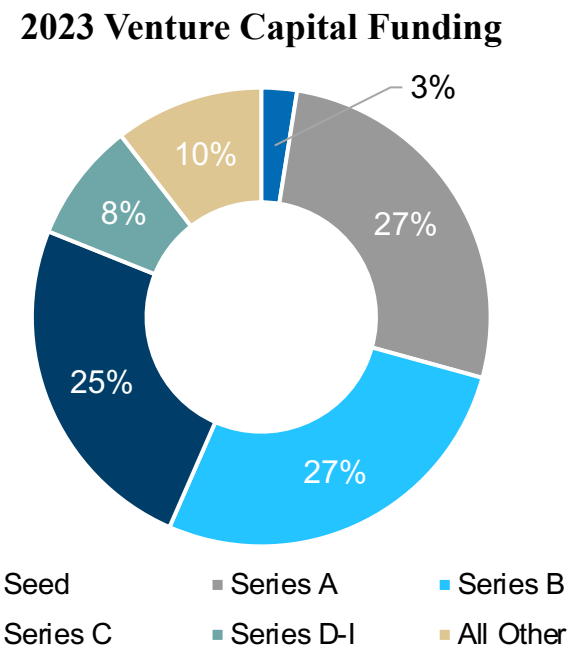
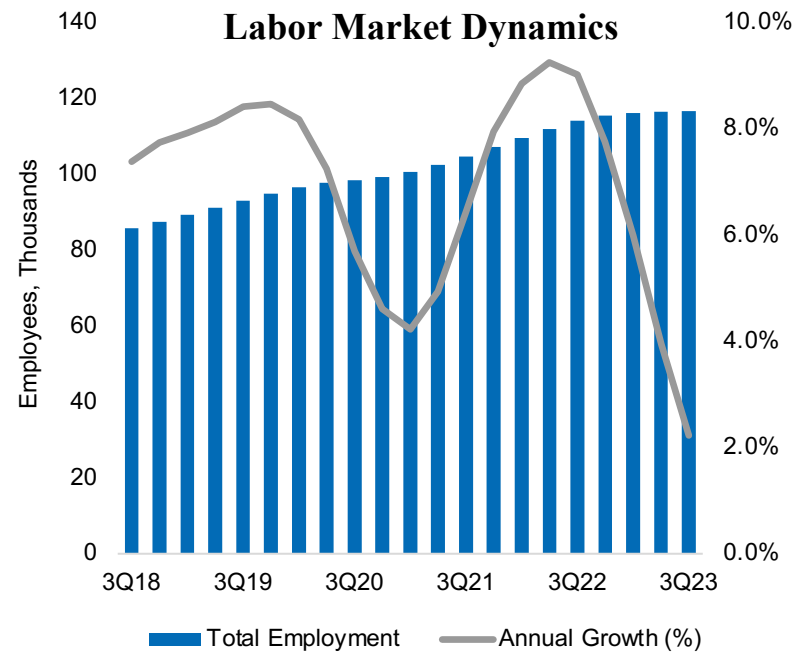


Top Tech Transfer Universities

- Harvard University
- MIT
- Tufts University
- Northeastern University
- UMass Boston
- Brandeis University

San Francisco Bay Area

- The region's 6.2-million-SF construction pipeline continued to trend downwards in the fourth quarter of 2023. Of the notable ground-up construction, 9.4% is already preleased compared with 7.8% in the previous quarter.
- Active demand for lab space was recorded at 2.6 million SF this quarter, down from 2.8 million SF in the previous quarter and down from 5.2 million SF one year ago.
- Existing lab space located in established, talent-rich biotech hubs throughout the Bay Area is expected to attract continued investor and tenant demand, while the historic wave of new supply that is set to hit the Bay Area market in 2024 should help stimulate current demand, allowing tenants to find relatively attractive deals.
- Proposed projects in the pipeline that have not begun the entitlement process are expected to be put on hold or scrapped entirely due to uncertainty in the macroeconomic environment.



Year-End Stats

- 39.8 MSF**
Total Inventory
- 6.2 MSF**
Under Construction
- 2.5 MSF**
Year-to-date Net Absorption
- 18.2%**
Vacancy Rate
- \$77.88/SF**
Asking Rent (NNN)

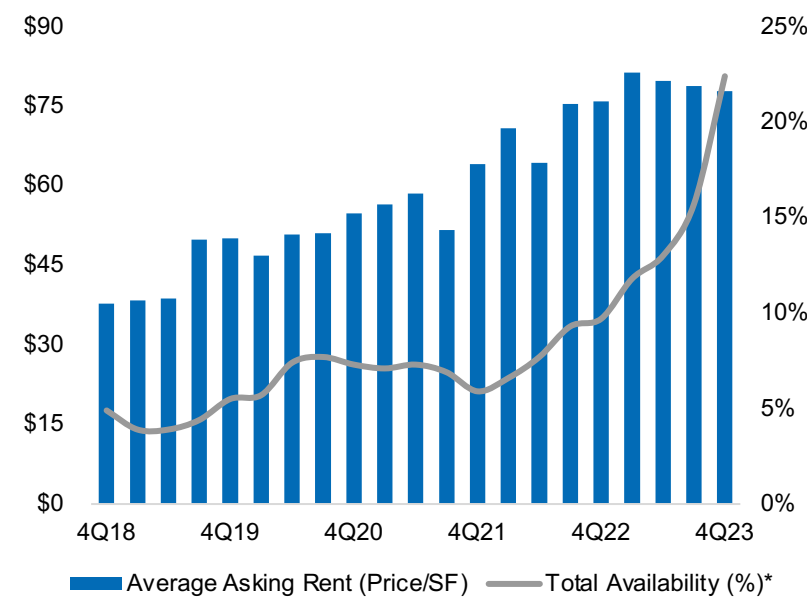
Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
Cargo Therapeutics	835 Industrial Rd, San Carlos	San Carlos	Direct Lease	99,557
Thermo Fisher Scientific / Finesse Solutions	3301-3251 Leonard Ct, Santa Clara	Santa Clara	Lease Renewal	90,095
Rani Therapeutics	47703 Fremont Blvd, Fremont	Fremont	Direct Lease	33,340

Select Sale Transactions

Building / Address	Submarket	Sale Price	Price/SF	Square Feet
2825 N. 1st St, San Jose	San Jose	\$34.1M	\$658	51,758

Asking Rent and Vacancy



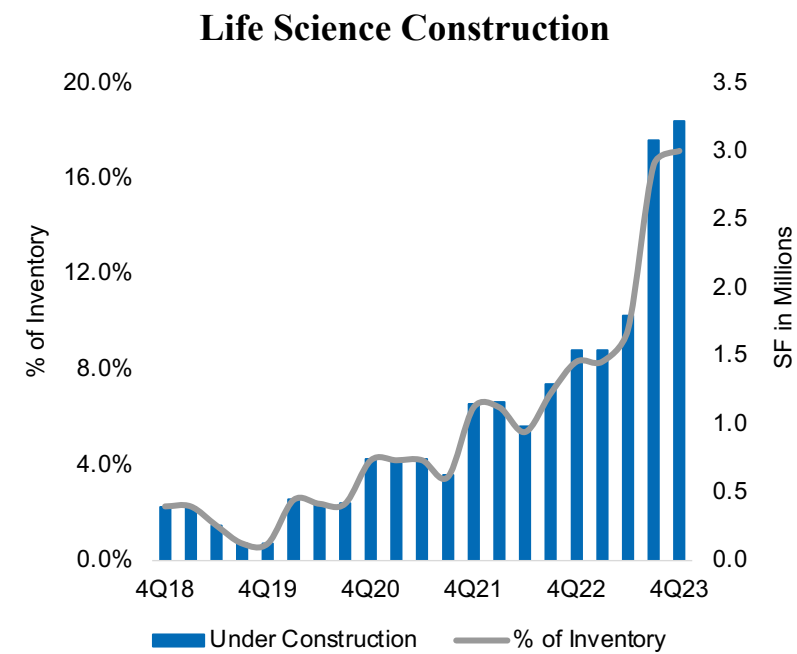
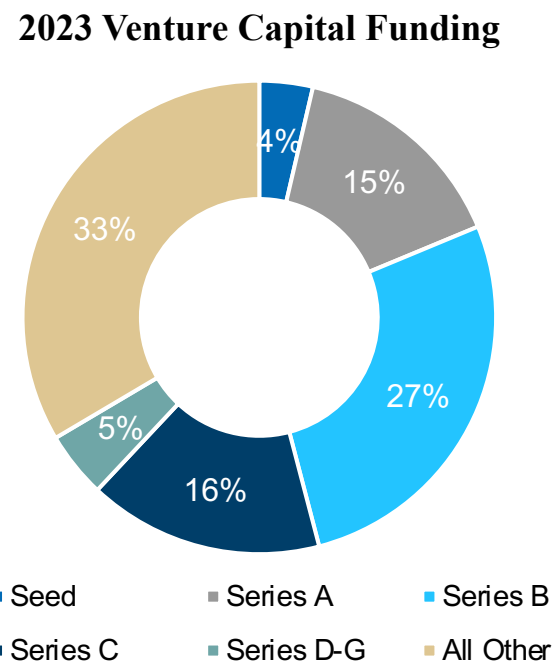
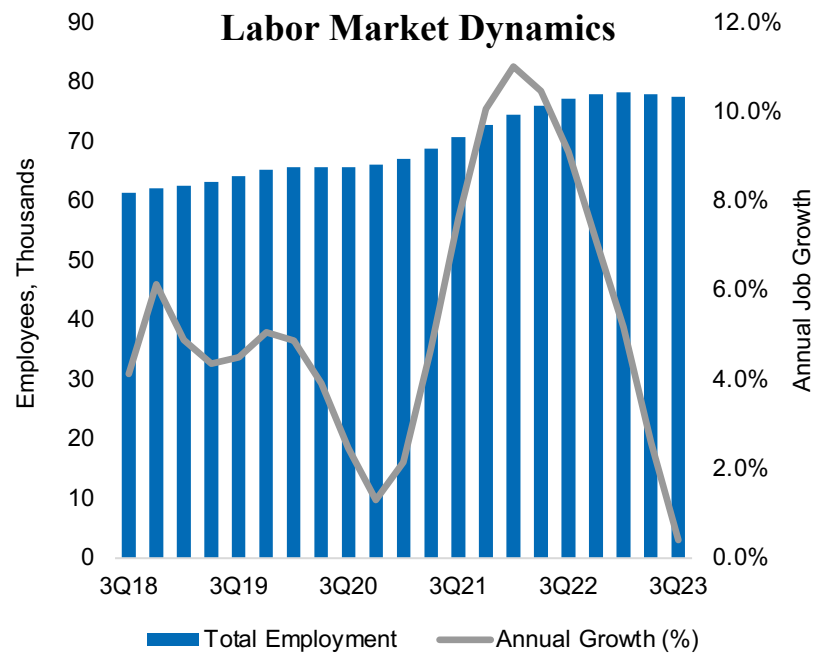
Top Tech Transfer Universities

- Stanford University
- University of California, Berkeley

Sources: JobsEQ, Pitchbook, RCA, Heartland Forward, Newmark Research

San Diego

- Leasing activity has slowed, and the vacancy rate climbed to 14.7% after the market posted 1.1 million SF in annual absorption losses.
- Development remains historically high, with 1.6 million SF under construction in the life science core and a further 1.8 million SF in emerging submarkets across the county. There is 347,000 SF of existing space being converted to life science in the core, with an additional 1.3 million SF in emerging submarkets.
- Most developers have paused proposed developments and signaled they will only break ground on additional construction with a tenant in tow.
- Venture capital funding has decelerated from the record-setting levels of 2021, but total investment during 2023 still totaled an impressive \$2.1 billion. Acquisitions were also robust, with \$15.4 billion of companies acquired during 2023, a 10-year high.



Year-End Stats

18.7 MSF
Total Inventory

3.2 MSF
Under Construction

-1.1 MSF
Year-to-date Net Absorption

14.7%
Vacancy Rate

\$76.67/SF
Asking Rent (NNN)

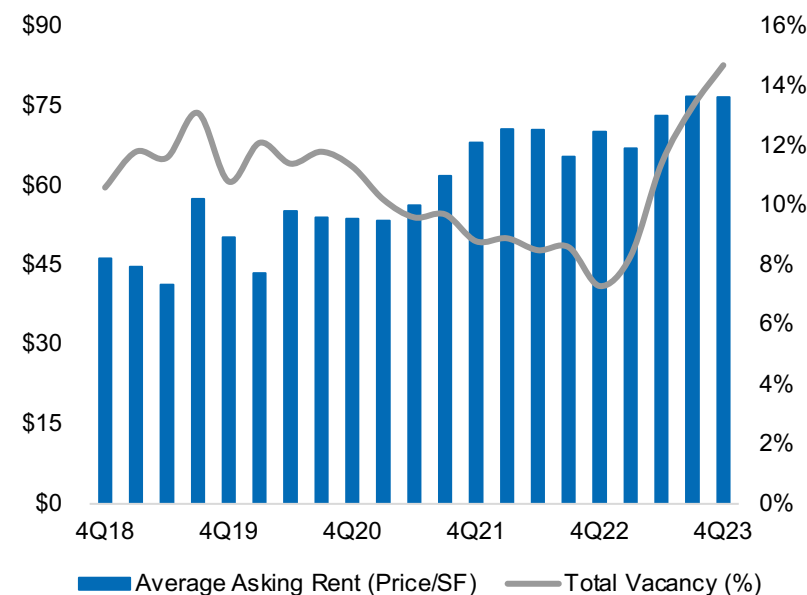
Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
Ventyx Biosciences	12790 El Camino Real, San Diego	De Mar Heights	Sublease	35,016
Velia	10075 Barnes Canyon Rd, San Diego	Sorrento Mesa	Direct Lease	31,079
Bavarian Nordic	6275 Nancy Ridge Dr, San Diego	Sorrento Mesa	Lease Renewal	30,895

Select Sale Transactions

Building / Address	Submarket	Sale Price	Price/SF	Square Feet
11065-75 Roselle St, San Diego	Sorrento Valley	\$14.9M	\$342	43,530
11025-35 Roselle St, San Diego	Sorrento Valley	\$9.5M	\$237	40,129

Asking Rent and Vacancy

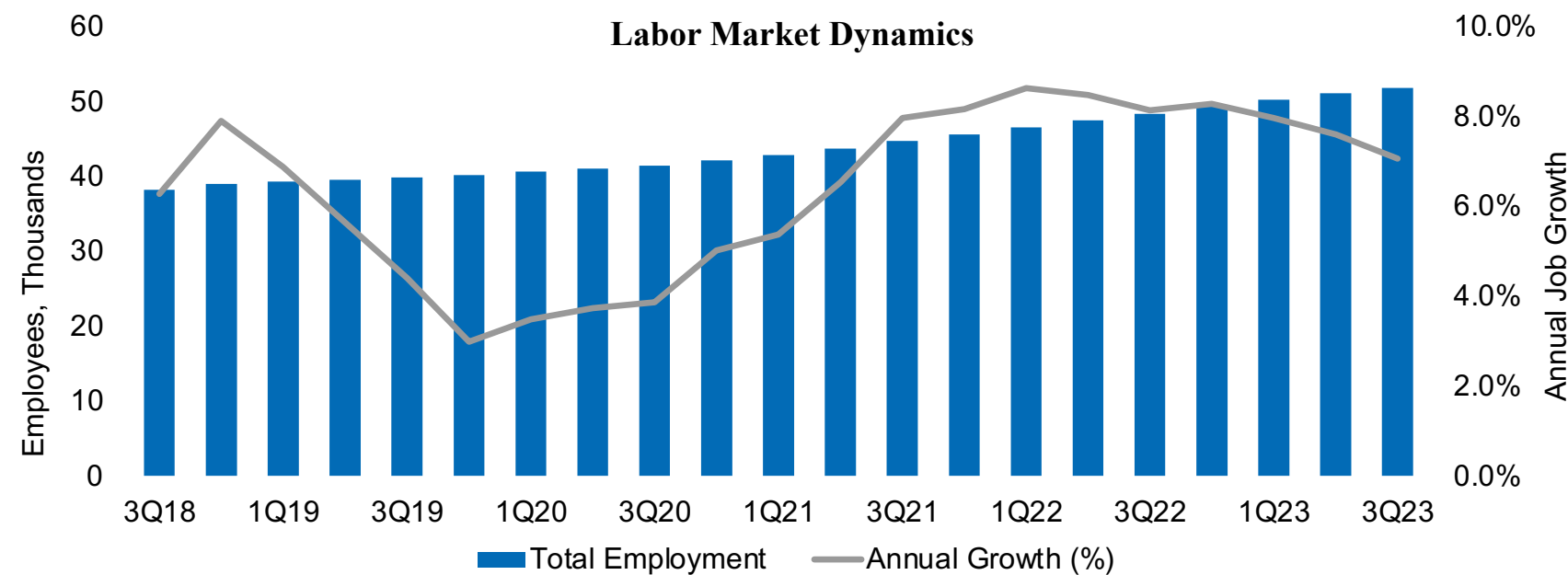


Top Tech Transfer Universities

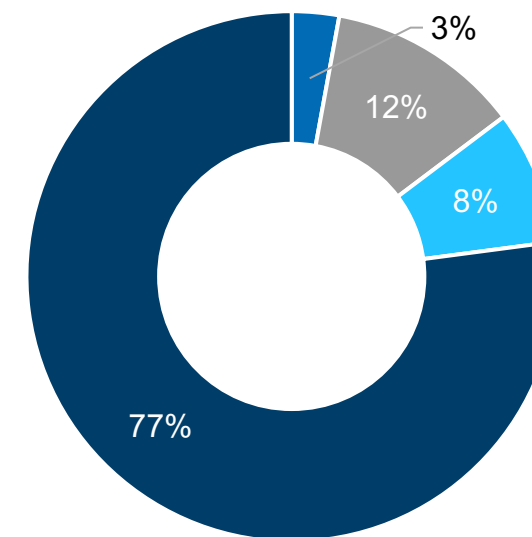
- University of California, San Diego
- San Diego State University

Raleigh/Durham (Research Triangle)

- This past year was one of transition for most of the life science market in Raleigh/Durham. Coming off the robust growth from 2020 to 2021, the market continues to tread water, with much of the market vacancy being attributed to new developments that were conceived in those boom periods.
- Smaller suites that are built out (spec suites in particular) continue to lease well and are indicative of the capital-constrained environment that many tenants face. These suites typically lease at a premium but are viewed as mutually beneficial for the tenant and owner.
- In the long term, the market is well positioned to grow further, with participants viewing the cost and availability of capital as the key reason for tepid demand. The cost-attractive nature of North Carolina, along with the stable university and talent pipelines the market enjoys, likely results in a quick tick up in activity once capital flows return.



2023 Venture Capital Funding



■ Seed ■ Series A ■ Series B ■ All Other

Year-End Stats

12.8 MSF
Total Inventory

370K SF
Under Construction

-31K SF
Year-to-date Net Absorption

19.2%
Vacancy Rate

\$41.00 /SF
Asking Rent (NNN)

Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
Forge Nano	401 Southport Drive	RTP	New Lease	175,000
Catalent	Southport Innovation Center	RTP	Renewal	131,000
BioPlus	4900 Prospectus	RTP	New Lease	42,000

Select Sale Transactions

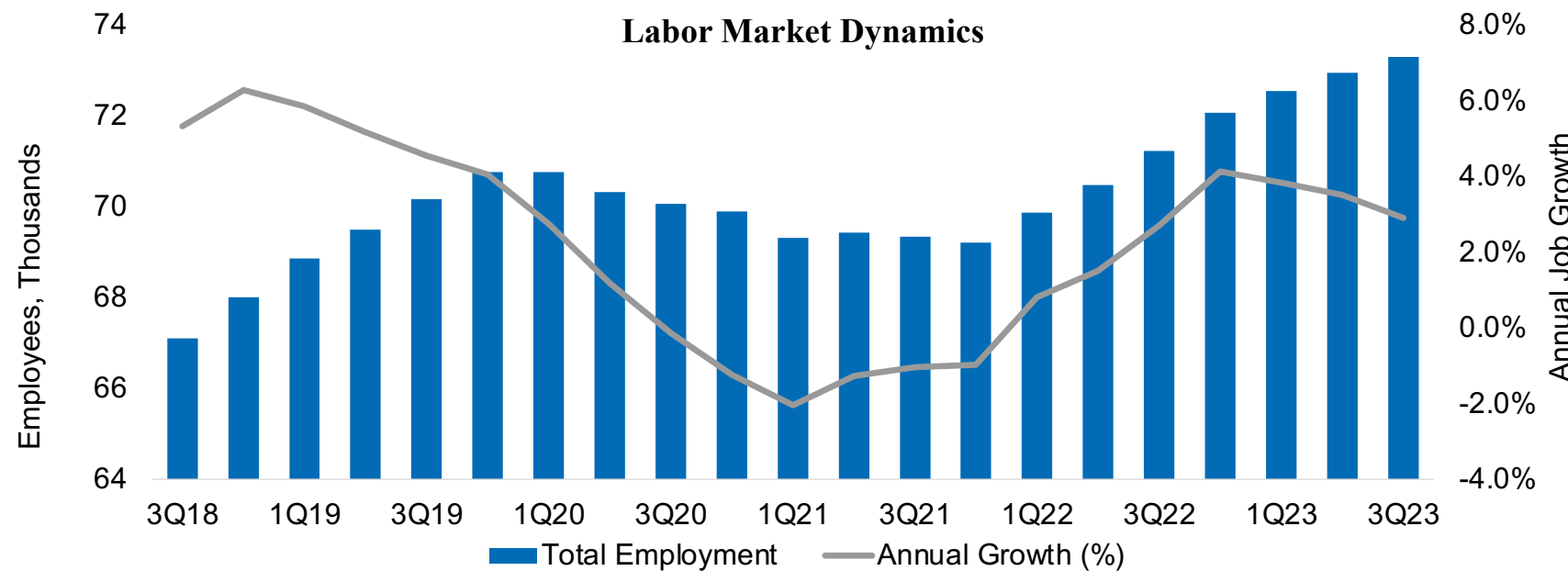
Building / Address	Submarket	Sale Price	Price/SF	Square Feet
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Top Tech Transfer Universities

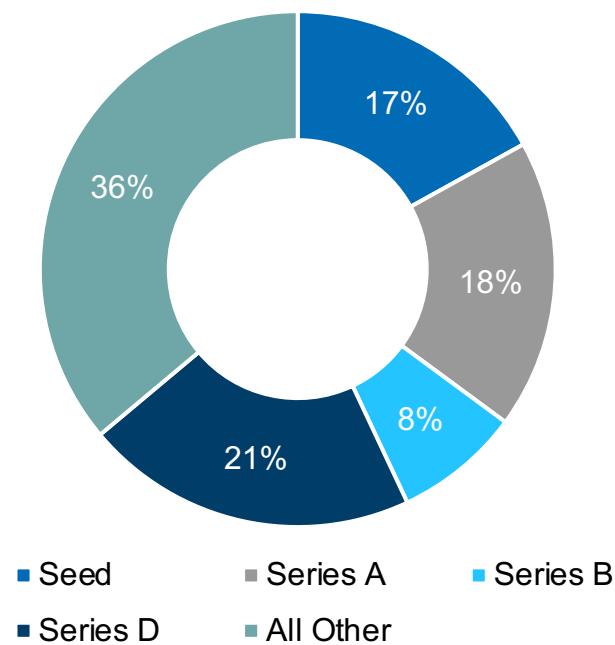
- North Carolina State University
- Duke University
- University of North Carolina at Chapel Hill

Greater Philadelphia

- A notable change to our construction pipeline occurred in the fourth quarter of 2023. The 200,000-SF building at 3025 JFK Blvd. that was originally designated for lab use was reclassified as office. The owner, Brandywine Realty Trust, had difficulty leasing up the building due to multiple factors, like reduced life science funding and apartments being above the lab space. This is a benefit to the market since the availability rate is above the historical average and 1.2 million SF remains in the construction pipeline.
- Space demand for lab users remains primarily focused on the city, specifically the University City submarket. The concentration of the region’s premier research institutions and life science companies provides extraordinary benefits, such as talent sourcing and collaboration.



2023 Venture Capital Funding



Year-End Stats

7.3 MSF
Total Inventory

1.2 MSF
Under Construction

376K SF
Year-to-date Net Absorption

8.8%
Vacancy Rate

\$58.61/SF
Asking Rent (NNN)

Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
Biocoat	113 Rock Rd, Horsham	Horsham/Willow Grove	Lease Extension	37,500
Tela Bio	1 Great Valley Pkwy, Malvern	Exton/Malvern	Lease Expansion	35,954
Code Biotherapeutics	727 Norristown Rd, Ambler	Fort Washington	Lease Extension	37,500

Select Sale Transactions

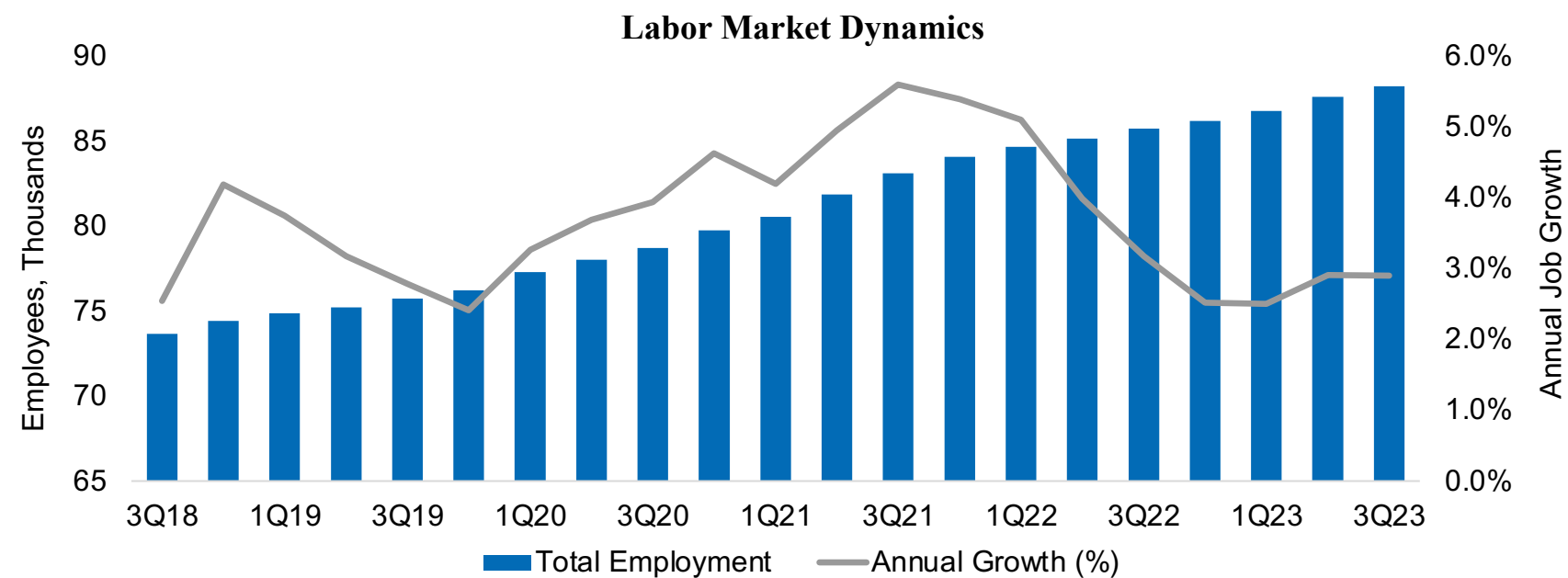
Building / Address	Submarket	Sale Price	Price/SF	Square Feet
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Top Tech Transfer Universities

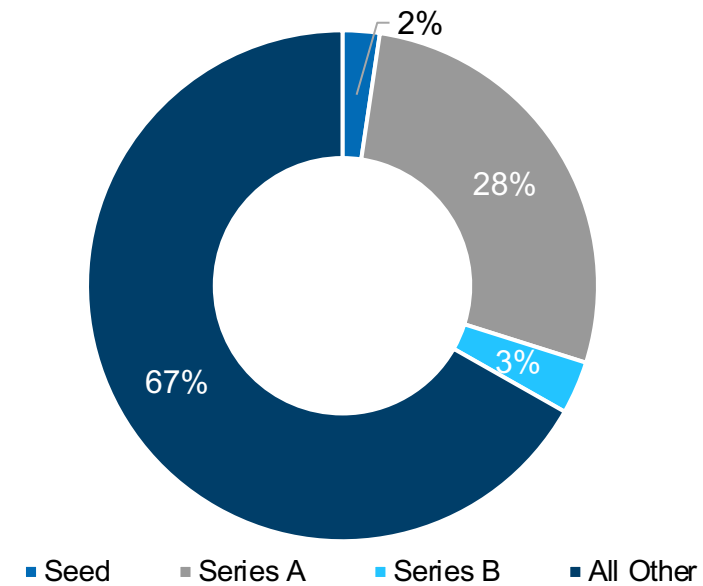
- University of Pennsylvania
- Drexel University
- Temple University

Maryland / Mid-Atlantic

- New development has decreased significantly since the start of the pandemic, with only one new project under construction.
- Vacancy has decreased 100 basis points since the third quarter of 2023, reaching 9.5%, but has increased 300 basis points over the last 12 months.
- Approximately 430,000 SF of new lab space delivered in 2023.



2023 Venture Capital Funding



Year-End Stats

11.6 MSF
Total Inventory

73K SF
Under Construction

59K SF
Year-to-date Net Absorption

9.5%
Vacancy Rate

\$28.39/SF
Asking Rent (NNN)

Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
AstraZeneca	700 Progress Way, Gaithersburg	Gaithersburg	Direct Lease	198,000
ICT	50 W Gude Dr, Rockville	North Rockville	Direct Lease	11,924

Select Sale Transactions

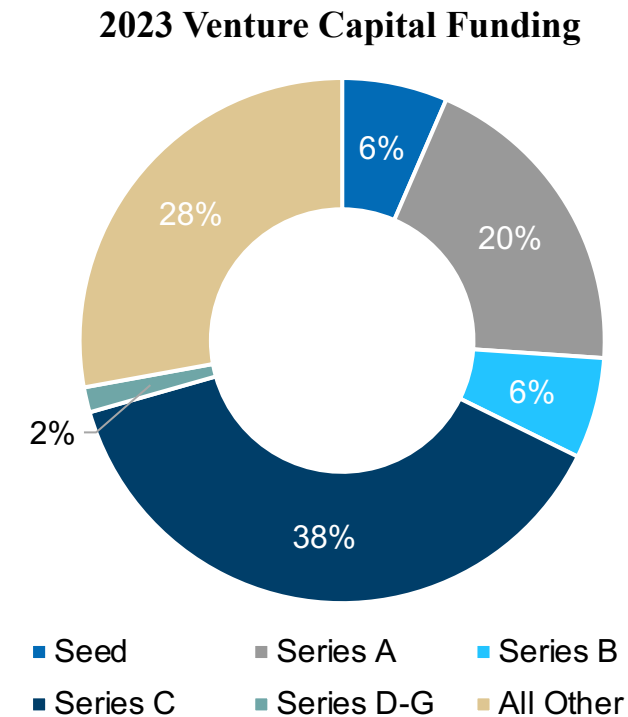
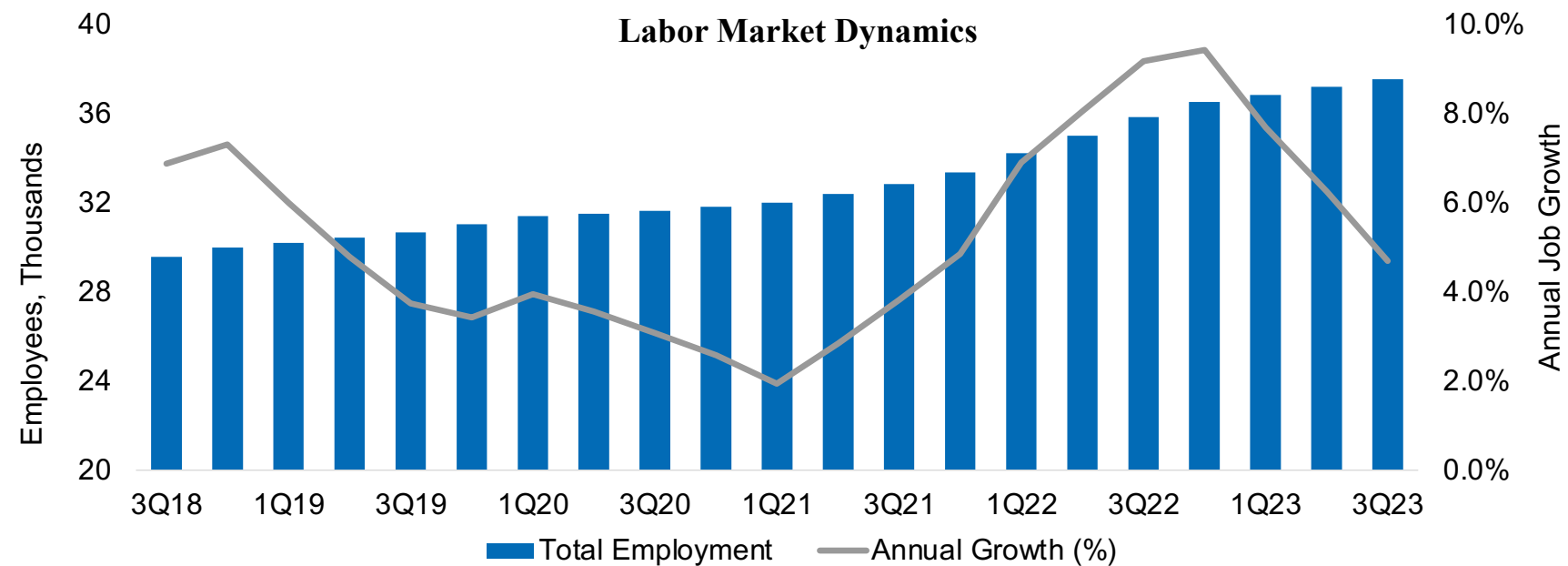
Building / Address	Submarket	Sale Price	Price/SF	Square Feet
7320 Executive Center Way	Frederick	\$6.8M	\$154	43,876
12725 Twinbrook Parkway	North Rockville	\$6.2M	\$105	58,880

Top Tech Transfer Universities

- Johns Hopkins University
- University of Maryland, College Park

Seattle

- The life science sector continues to show positive fundamentals, but demand for space has slowed alongside the office market.
- High-quality lab space remains scarce, with most availability being in Class B product. Conversions are seeing limited activity, as users prefer to focus on purpose-built assets.
- Eleven50 delivered in the South Lake Union submarket during the third quarter of 2023. The 303,119-SF project was fully leased upon delivery.



Year-End Stats

10.6 MSF
Total Inventory

868K SF
Under Construction

616K SF
Year-to-date Net Absorption

5.3%
Vacancy Rate

\$68.54/SF
Asking Rent (NNN)

Top Tech Transfer Universities

- University of Washington
- Washington State University

Select Lease Transactions

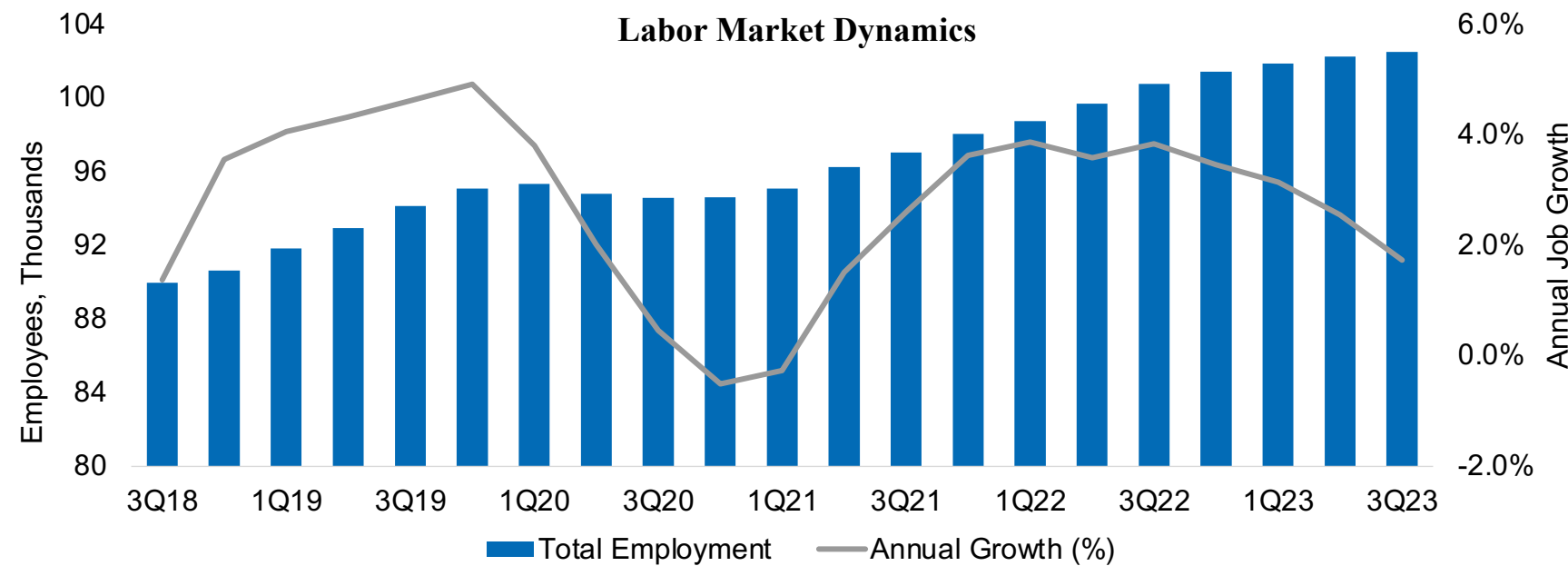
Tenant	Building / Address	Submarket	Type	Square Feet
Undisclosed	21520 30 th Dr. SE, Bothell	Bothell	Direct Lease	61,094
Kestra Medical Technologies	Plaza Yarrow Bay, Kirkland	Kirkland	Direct Lease	31,448
Zeno Power Systems	219 Terry Ave. N, Seattle	Lake Union	Direct Lease	15,800

Select Sale Transactions

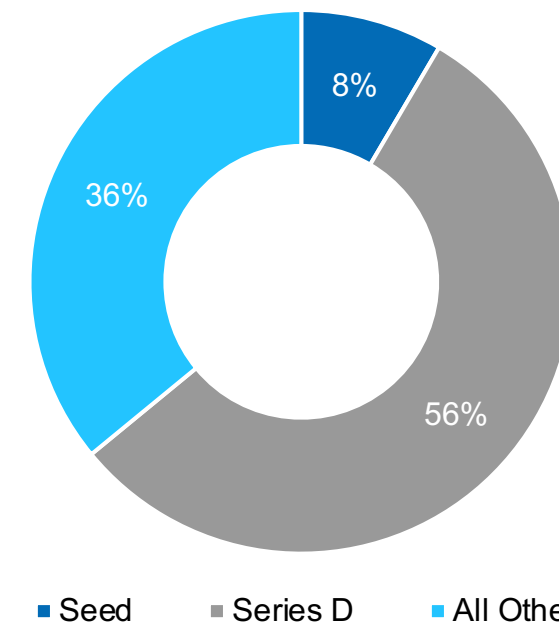
Building / Address	Submarket	Sale Price	Price/SF	Square Feet
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Northern New Jersey

- National economic challenges have impacted the life science market in Northern New Jersey. Vacancy increased 10 basis points during the fourth quarter of 2023 to 9.0%.
- RegenLab USA signed a 15,792-SF lease during the fourth quarter of 2023 at 95 Greene St. in Jersey City. The biotech company will be relocating from the Brooklyn Army Terminal in New York and is one of numerous tenants that has relocated from New York to New Jersey in the last 18 months.
- The construction pipeline increased during 2023 to over 700,000 SF as construction has begun at the 400,000-SF Beigene Pharmaceutical manufacturing center, located in the Princeton West Innovation Park in Pennington.
- Tax incentives available from the New Jersey Economic Development Authority's Emerge program will assist in driving the sector as the State of New Jersey plans to court growing innovation companies.



2023 Venture Capital Funding



Year-End Stats

10.7 MSF
Total Inventory

707K SF
Under Construction

-239K SF
Year-to-date Net Absorption

9.0%
Vacancy Rate

\$25.28/SF
Asking Rent (NNN)

Top Tech Transfer Universities

- Princeton University
- Rutgers University New Brunswick

Select Lease Transactions

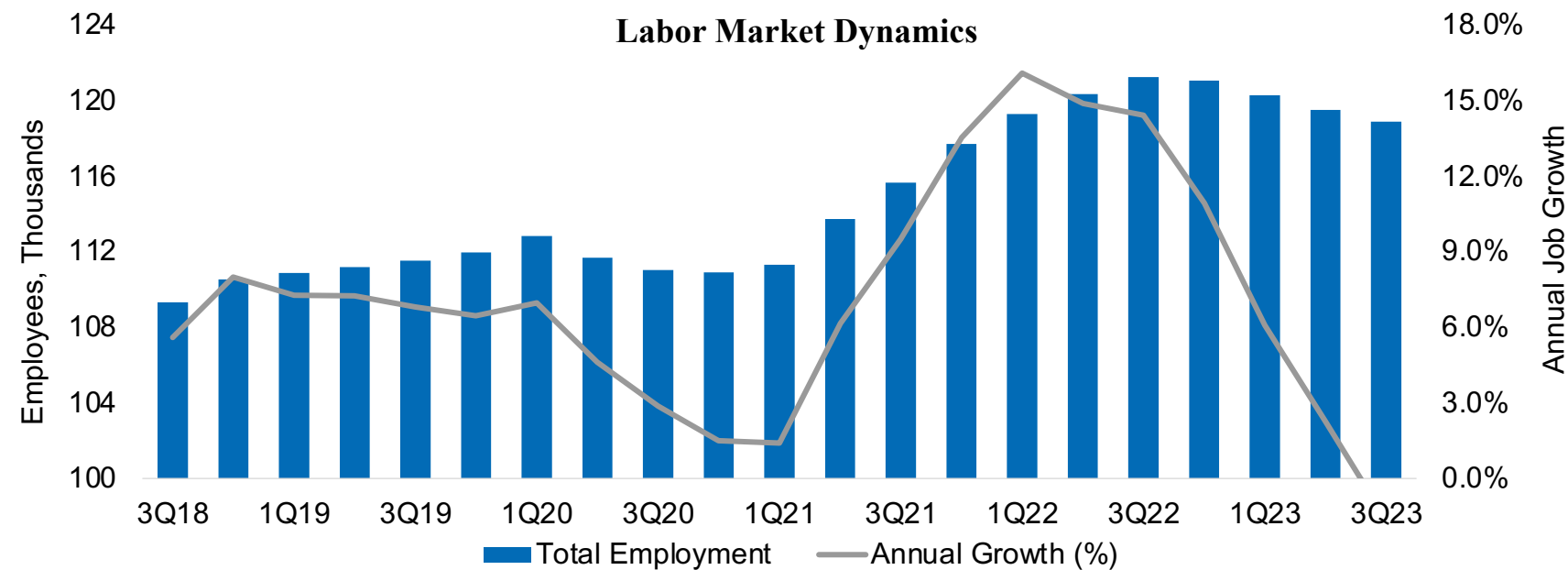
Tenant	Building / Address	Submarket	Type	Square Feet
Undisclosed	100 Corporate Ct, South Plainfield	Piscataway/I-287 South	Direct Lease	29,938
Undisclosed	95 Greene St, Jersey City	Hudson Waterfront	Direct Lease	29,872
RegenLab USA	95 Greene St, Jersey City	Hudson Waterfront	Direct Lease	15,792

Select Sale Transactions

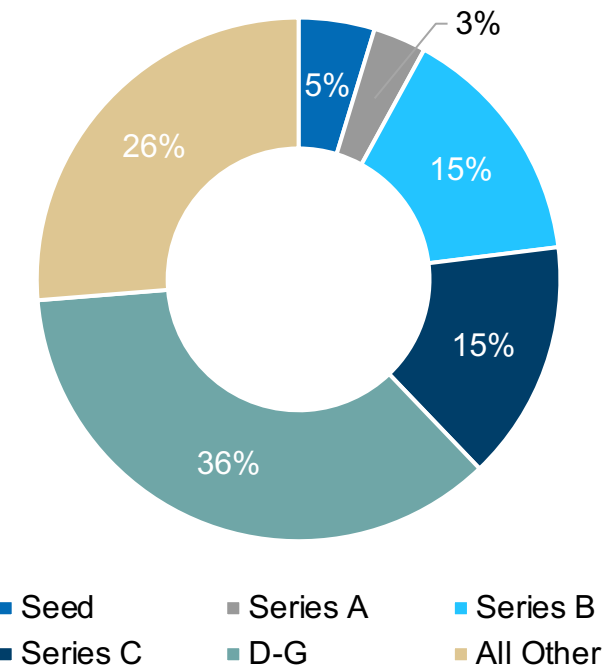
Building / Address	Submarket	Sale Price	Price/SF	Square Feet
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Los Angeles - Orange County

- While the Los Angeles metropolitan area is considered an emerging life science market, it has the building blocks and momentum to become a top-tier national market.
- A deep, diverse and educated labor pool provides opportunities for both early-stage and established pharmaceutical and biotechnology companies to expand.
- A lack of leasable lab product is the challenge; however, this has led to development in pockets such as Thousand Oaks, West LA, Pasadena and Irvine. All areas benefit from their proximity to major universities and industry occupiers.
- Venture capital investments were down in 2023 as a result of a difficult capital markets environment, but still exceeded \$1.5 billion. As a result, M&A and partnerships deals saw increased activity, most notably from names in the top 50 largest pharma groups. The LA metro area received over \$2.0 billion in NIH grants between 2022 to 2023, with the largest grant funding of over \$650 million to UCLA.



2023 Venture Capital Funding



Year-End Stats

12.8MSF
Total Inventory

628K SF
Under Construction

110K SF
Year-to-date Net Absorption

2.7%
Vacancy Rate

\$60.00/SF
Asking Rent (NNN)

Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
Terray Therapeutics	750 Royal Oaks	Pasadena/SGV	New	49,000
CSL Behring	129 Hill Ave	Pasadena/SGV	Lease Renewal	19,867
Epic BNNT	112 S Lakeview Canyon	Westlake Village	New	15,590

Select Sale Transactions

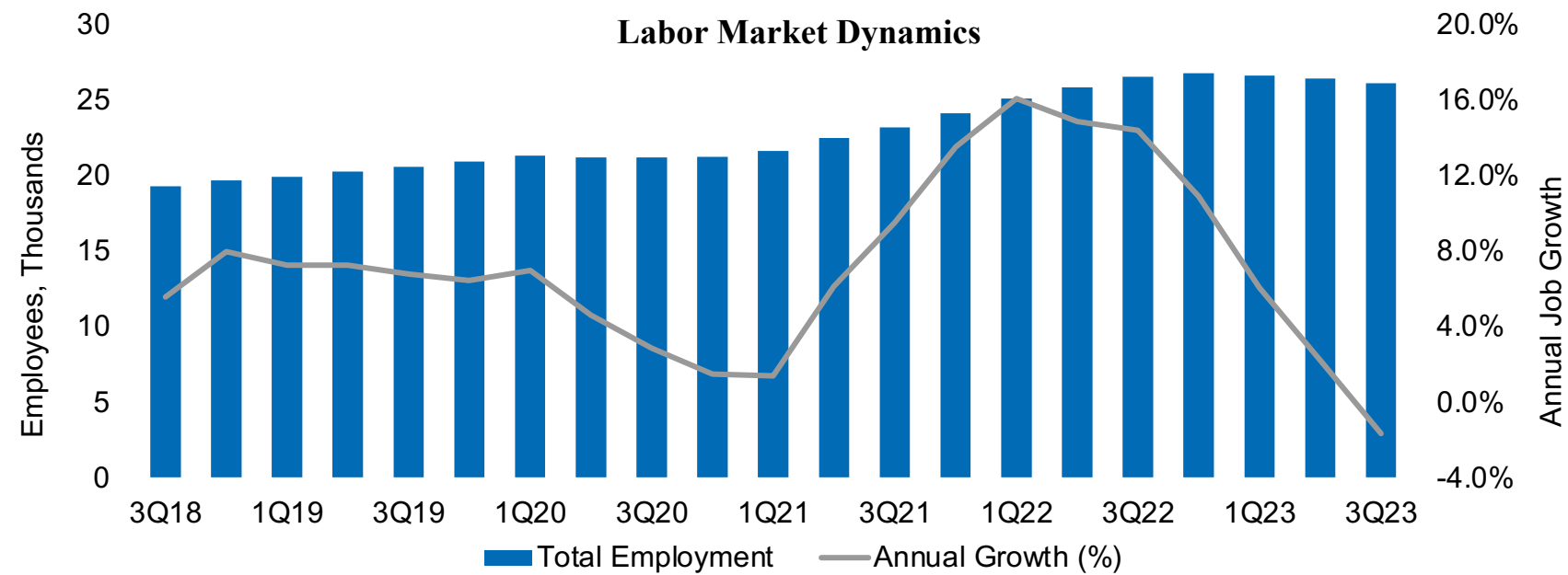
Building / Address	Submarket	Sale Price	Price/SF	Square Feet
10800 W Pico Blvd	Culver City	\$700M	\$1,000	700,000
120 Via Merida	Westlake Village	\$17.75M	\$180	98,776

Top Tech Transfer Universities

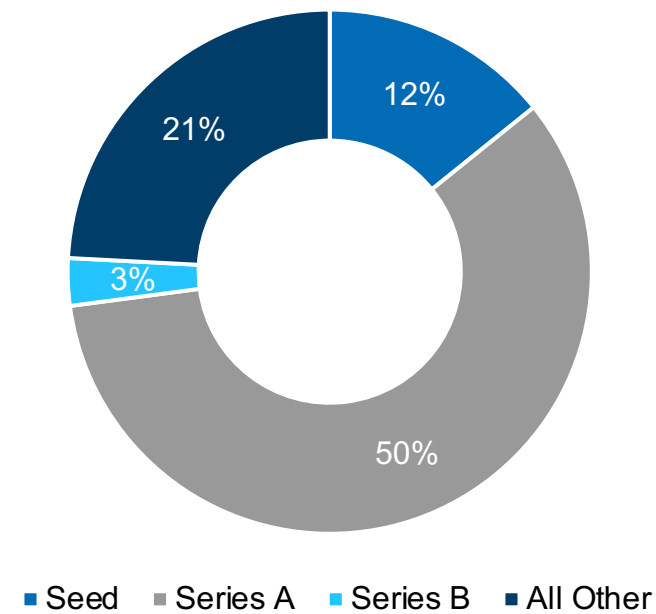
- California Institute of Technology
- USC
- UC Los Angeles
- UC Davis
- UC Irvine

New York City

- The first deal was completed at 125 West End Ave., which completed construction in late 2023. Graviton Bioscience leased 30,000 SF at the redevelopment in July 2023.
- Financial headwinds are causing tenants to re-evaluate their footprint and, in some cases, add space to the market for sublease.
- The city and state announced a public/private partnership called SPARC Kips Bay, a new 1.5-million-SF hub that will encompass a full city block for life science, academic and medical use. The project is expected to create 10,000 jobs over the next 30 years, generating a \$25-billion impact to the city.
- New York City Mayor Eric Adams announced in early 2023 that the city will invest \$20 million for a 50,000-SF first-in-the-nation facility for office, lab and event space at the Brooklyn Navy Yard.



2023 Venture Capital Funding



Year-End Stats

4.4 MSF
Total Inventory

561K SF
Under Construction

-450K SF
Year-to-date Net Absorption

33.5%
Vacancy Rate

\$85 - \$130/SF
Asking Rent (NNN)

Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
Graviton Bioscience	125 West End Avenue	Upper West Side	Direct Lease	30,000

Select Sale Transactions

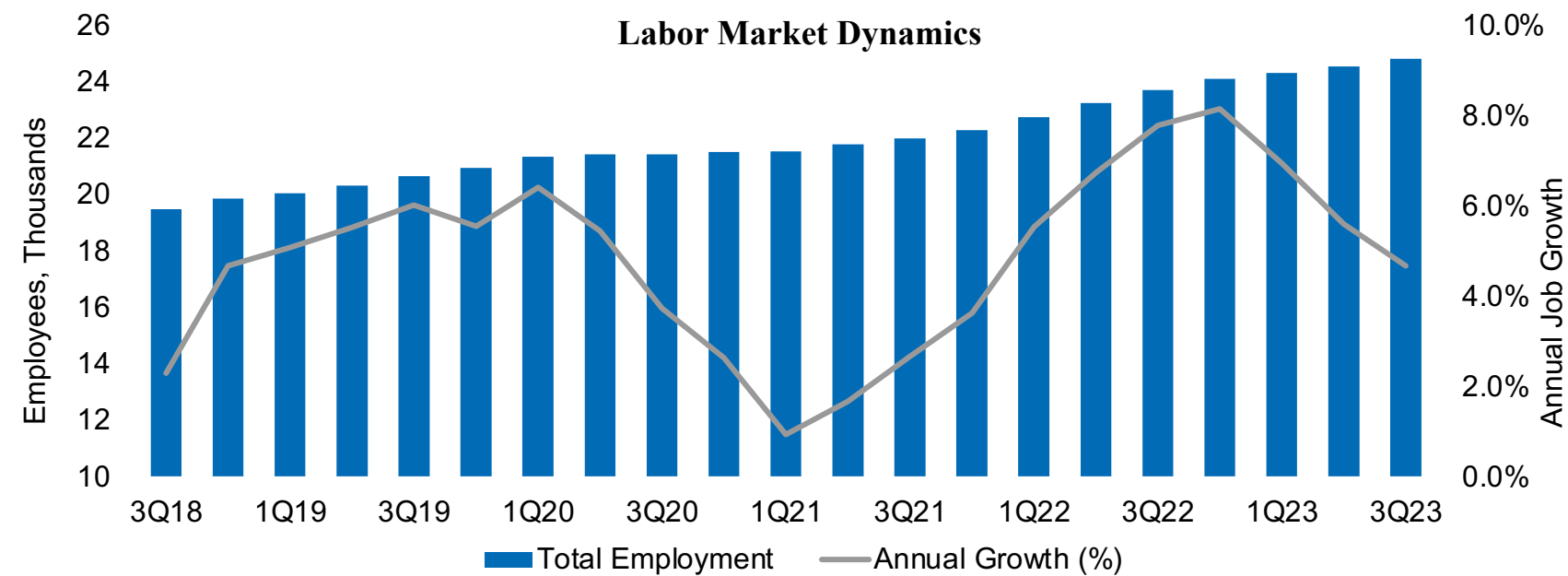
Building / Address	Submarket	Sale Price	Price/SF	Square Feet
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Top Tech Transfer Universities

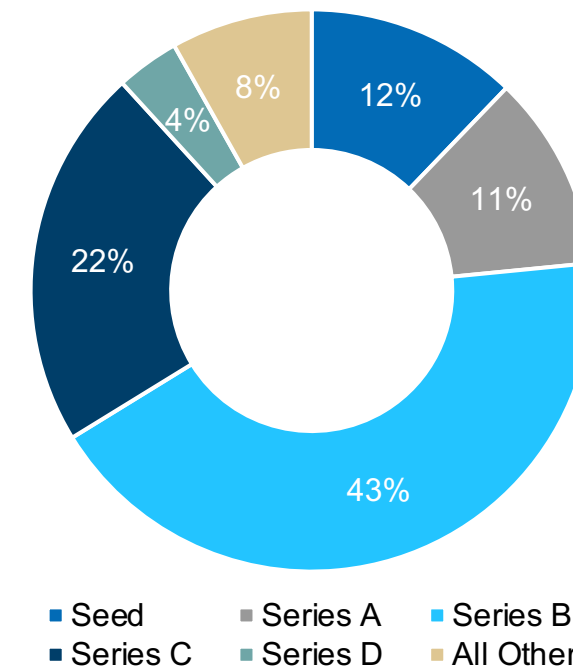
- Columbia University
- New York University

Denver/Boulder

- Though vacancy increased, the driver was the delivery of 100,000 SF of high-quality spec suites by BioMed Realty, Breakthrough, Steelwave, Sterling Bay and Beacon Capital Partners.
- There was only one significant sale transaction during the second half of 2023, which was the \$188-million trade of the Medtronic Lafayette Campus from Ryan Companies to Real Capital Solutions.
- Only 64,000 SF of ground up construction was underway at the end 2023, with additional spec lab spaces scheduled to be delivered in 2024.
- The average rate for spec lab spaces is \$60/SF NNN, with a high above \$70/SF NNN.
- Leasing demand is a healthy balance of evolving Boulder firms and global life science organizations.



2023 Venture Capital Funding



Year-End Stats

4.4 MSF
Total Inventory

64K SF
Under Construction

381K SF
Year-to-date Net Absorption

9.9%
Vacancy Rate

\$60.00/SF
Asking Rent (NNN)

Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
Novo Nordisk	4780 Pearl East Cir, Boulder	Boulder	Direct Lease	41,057
Foresight Diagnostics	2865 Wilderness Pl, Boulder	Boulder	Direct Lease	25,718

Select Sale Transactions

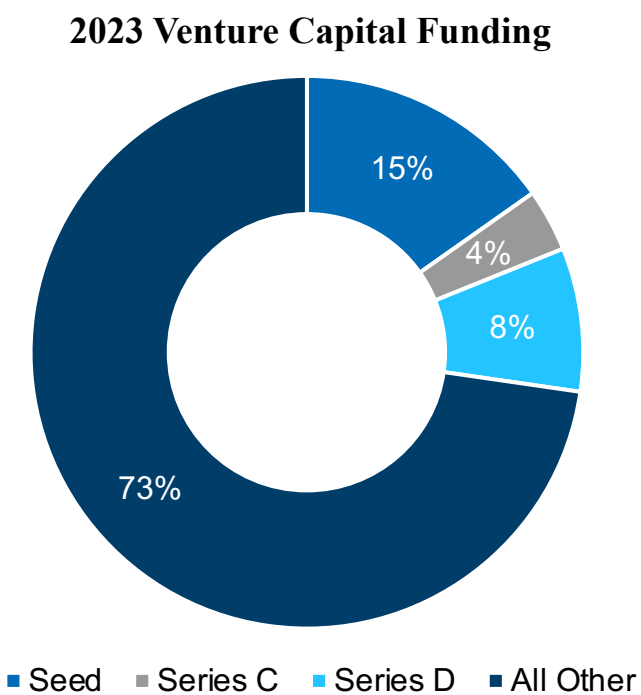
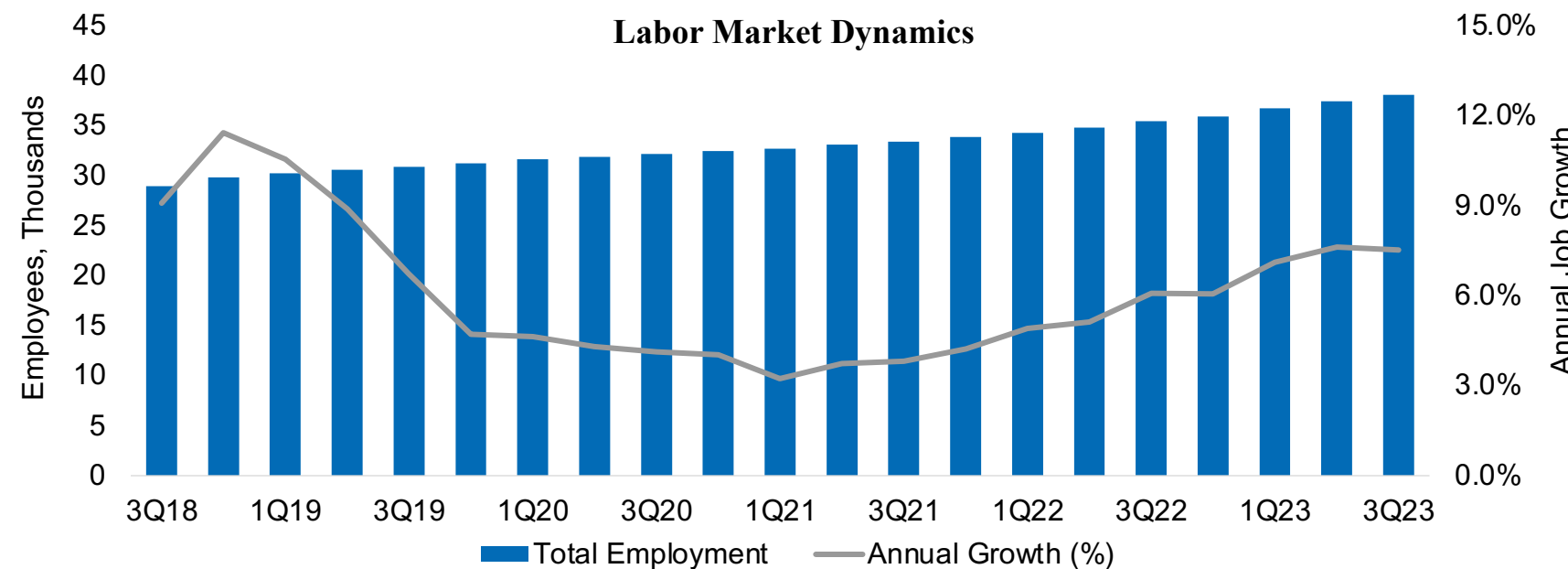
Building / Address	Submarket	Sale Price	Price/SF	Square Feet
Medtronic Campus	Northwest	\$188M	\$465	404,159

Top Tech Transfer Universities

- University of Colorado Boulder
- Colorado School of Mines
- University of Denver

Houston

- The Houston life science market currently has 592,286 SF under construction, with deliveries totaling 865,000 SF in 2023.
- The TMC3 Collaborative building, a 250,000-SF life sciences and research facility, opened in October 2023 as the first phase of Helix Park. The building includes a 43,000-SF joint research lab.
- Alexandria Real Estate Equities announced the development of a \$201.5-million, 325,000-SF campus in The Woodlands. The Alexandria Center for Advanced Technologies will feature move-in-ready laboratory space. The first building on the campus is under construction, with Nurix Therapeutics as the anchor tenant.



Year-End Stats

4.2 MSF
Total Inventory

592K SF
Under Construction

587K SF
Year-to-date Net Absorption

26.2%
Vacancy Rate

\$28.41/SF
Asking Rent (NNN)

Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
Houston Methodist	1840 Dynamic Way	Bellaire/Med Center	Direct New	75,800
Undisclosed	2450 Holcombe Rd	Bellaire/Med Center	Direct New	28,070
Undisclosed	2575 W Belfort St	Bellaire/Med Center	Direct New	13,294

Select Sale Transactions

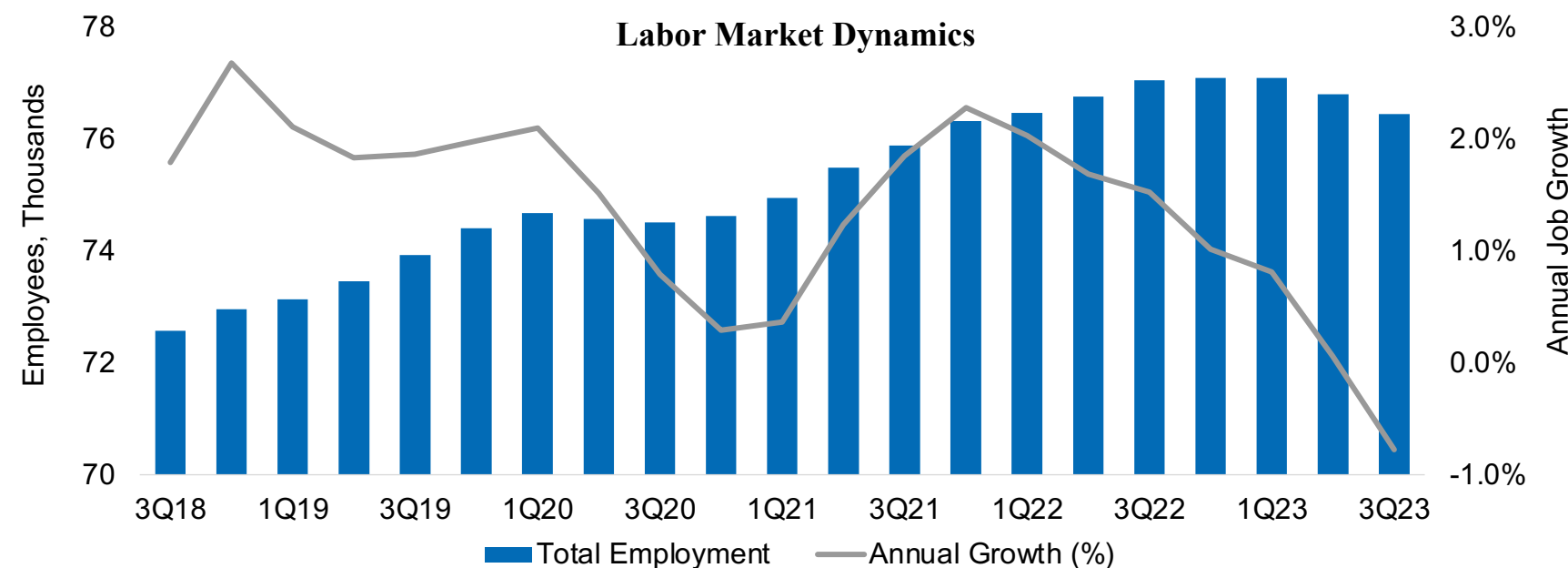
Building / Address	Submarket	Sale Price	Price/SF	Square Feet
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Top Tech Transfer Universities

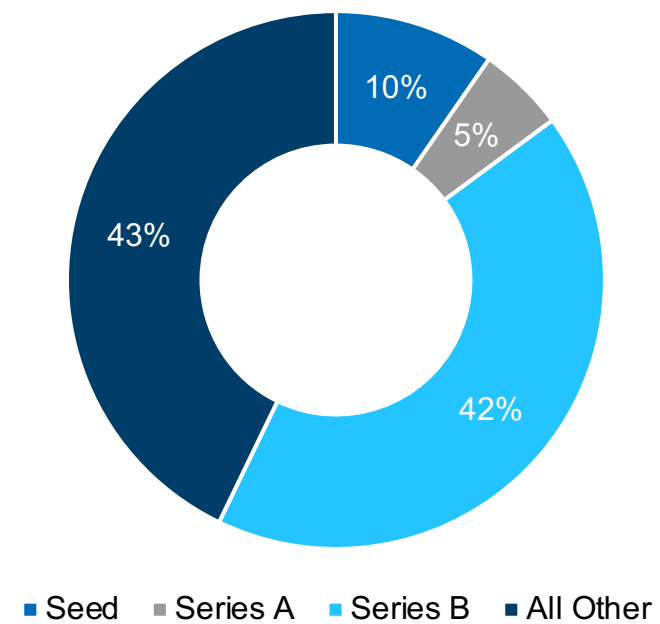
- Rice University
- University of Houston

Chicago

- 400 N Elizabeth, a proposed 500,000-SF life science building from Mark Goodman & Associates, has pivoted to multifamily after being unable to secure any tenants.
- Fulton Labs secured another tenant this quarter. MonoSol, the company responsible for the technology behind Tide PODS is opening a 35,000-SF innovation center at 1375 W Fulton.
- Sterling Bay's development at 2430 N Halsted secured four biotech research hubs: Seq Biomargue, CeGat Corporation, EVOQ Therapeutics and Cyclopure. This brings the property to 80% leased.



2023 Venture Capital Funding



Year-End Stats

1.8 MSF
Total Inventory

302K SF
Under Construction

61K SF
Year-to-date Net Absorption

52.2%
Vacancy Rate

\$60.00/SF
Asking Rent (NNN)

Select Lease Transactions

Tenant	Building / Address	Submarket	Type	Square Feet
MonoSol	1375 West Fulton St, Chicago	Fulton Market	Direct Lease	35,021
Mattiq	400 North Aberdeen, Chicago	Fulton Market	Direct Lease	17,377
Cyclopure	2430 N Halsted St, Chicago	Lincoln Park	Direct Lease	17,097
Belay Diagnostics	1375 West Fulton St, Chicago	Fulton Market	Lease Expansion	10,000

Select Sale Transactions

Building / Address	Submarket	Sale Price	Price/SF	Square Feet
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Top Tech Transfer Universities

- Northwestern University
- University of Chicago
- University of Illinois at Chicago

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