



THOUGHT
LEADERSHIP
SERIES

2020 Year-End: Life Science National Overview & Top Market Clusters

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NEWMARK



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Introduction

COVID Impact

2020 has been a formative year for life science real estate as the pandemic has accelerated both tenant and institutional investor demand for lab and incubator space as well as biomanufacturing, R&D and “innovation” spaces. One of the realities responsible for this shift in demand is that life science tenants have managed to circumvent work-from-home disruption impacting other office-users, and are less able to conduct vital research and development from home. Additionally, the global vaccine effort from R&D to production and distribution has galvanized the pharmaceutical, bio-engineering and therapeutics industries and reinforced their critical role in helping combat current and future pandemics. Support for “on-shoring,” reinforcing pharmaceutical supply chains and bringing back domestic drug manufacturing capabilities appears to be growing and, if pursued, could have large positive impact on demand for life science and bio-manufacturing real estate around the country.

The COVID-19 pandemic has also limited the scope of institutional real estate groups’ investment options, with market uncertainty impacting retail, hospitality and some segments of office product. The result has been a wave of life science fundraising activity, led by Blackstone but also emerging players such as IQHQ and Breakthrough Properties, traditional healthcare REITs such as Ventas and institutional groups such as DivcoWest and Clarion Partners. Similarly, healthcare venture capital funding in 2020 reached \$29.9 billion, targeting all aspects of the healthcare space, and M&A activity reached \$151 billion, bolstered by acquisition activity from the world’s largest pharmaceutical and biotechnology companies. In addition to demand-side drivers, the lack of built and available lab inventory in a handful of top life science submarkets, such as Cambridge and South San Francisco, has accelerated the growth in pricing and rental rates in those markets, and has also spurred construction, redevelopment and conversion activity.

Clusters

Prior to the COVID-19 pandemic, life science real estate was one of the top performing segments in the major urban clusters in Boston, San Francisco and San Diego. In Boston, life science tenants seeking space in Cambridge are expected to have to wait nearly two years for available space, highlighting the unprecedented demand underpinning the life science industry in that market. The lack of wet lab space in Cambridge has spurred construction and conversion activity in other submarkets such as the downtown Seaport District as well as suburban submarkets such as Lexington and Waltham. In San Francisco, where pre-pandemic market fundamentals had reached record highs and where building costs remain among the highest in the country, submarkets such as Emeryville in the East Bay have thrived and become targets of conversion and redevelopment activity. The existing lack of supply in San Diego's well-established life science submarkets of Torrey Pines and UTC have prompted projects downtown, such as IQHQ's 1.6 million square foot Research and Development District (RaDD).

Emerging Clusters

Markets such as New York City, Chicago, Houston, Denver and Austin that are home to world-renowned medical and educational institutions, large pipelines of STEM talent, and existing pharmaceutical and biotechnology company footprints, have the potential to become major life science clusters. New York City is one of the few markets outside of the major clusters where Alexandria has a major campus, with the expanding

Alexandria Center for Life Science on the east side of Manhattan. Other prominent life science developers, such as King Street Properties, are creating a life science community in Long Island City, where there is an abundance of former light industrial/flex buildings suitable for life science development/conversion within a 15-minute commute to Manhattan. In Chicago, mixed-use developments along the waterfront such as Lincoln Yards will feature life science space, and the expansion of the Illinois Medical District on the west side will encourage further healthcare-related development. In Houston, recent expansions of the top ranked Texas Medical Center (TMC) have included the Innovation Institute, which encourages the development of accelerators and incubators for early stage life science and healthcare companies. In addition to having favorable demographic tailwinds, Denver is rapidly becoming a major life cluster—this is in part due to the 578 acre Fitzsimons Life Science District, which includes a range of biotechnology and life science firms that collaborate with University of Colorado well as various hospitals in the UCHHealth system.

Capital Markets

While COVID-19 impacted volume and liquidity across all property types in the second quarter, life science real estate included, investors quickly pivoted toward sectors recognized as being more resilient to the pandemic and as having secular growth characteristics. In the fourth quarter alone life science volume reached nearly \$4 billion, with another \$3.5 billion pending, from Blackstone BioMed's acquisition of Brookfield's 2.3 million square life science portfolio. The concentration of life science investment volume

as a percentage of total office volume reached a record high of 16.4% in 2020, as nearly \$15 billion of fundraising activity and over \$10 billion of closed real estate deals was recorded. The most established life science real estate firms—namely, Alexandria and Blackstone's BioMed Realty—have been the most active groups in 2020, but there has been a notable pickup in activity by institutional groups such as Boston Properties, Beacon Capital Partners, and Spear Street Capital.

The concentration of life science investment volume as a percentage of total office volume reached a record high of 16.4% in 2020.

Institutional investors across the largest life science markets are actively reevaluating "highest and best use" for their office, flex and industrial portfolios and are considering converting their properties to meet immediate life science demand. While specialty life science developers and operators have several advantages in the life science sector, including experience with the highly technical components of life science development, it is expected more institutional players will enter the life science space. In addition to outright acquisitions, institutional groups will likely expand their life science exposure by creating life science platforms, like Tishman Speyer and Bellco Capital's Breakthrough Properties, or by strategic joint ventures, minority interest transactions and/or recapitalizations of existing life science product.

National Overview

Top Life Science Owners

- Alexandria**

Currently the largest owner of life science real estate in the country, Alexandria (NYSE:ARE) continues to aggressively pursue deals, closing on an estimated \$3 billion in 2020. The company has a substantial pipeline, with over 2.8 million square feet actively under construction. The public REIT remains focused on the largest and most established clusters with Boston, San Francisco, Raleigh and San Diego receiving the largest allocations in 2020.
- Blackstone BioMed**

The Blackstone owned platform recorded the largest transaction of the year—the under contract \$3.45 billion acquisition of Brookfield’s 2.3 million square foot life science portfolio, largely located in Cambridge, which is slated to close in 1Q21. Blackstone led fundraising activity with an estimated \$7.5 billion raised for the company’s life science perpetual fund, Blackstone Property Partners Life Sciences (BPPLS), in 2020. BioMed Realty Trust was sold to BPPLS for \$14.1 billion, as investors agreed to a longer-term hold instead of cashing out.
- Healthpeak Properties**

A traditional public medical office and healthcare REIT that made major investments in life science properties in 2020, closing on The Post building in Waltham, Massachusetts for \$320 million and the \$720 million three-property Cambridge Discovery Park portfolio.
- Ventas**

Also a traditional medical office and healthcare public REIT that has pivoted to life science in 2020, with the initial close of its perpetual life science and healthcare real estate fund and the \$1 billion purchase of the three-property South San Francisco Genesis portfolio in October.
- Longfellow Real Estate Partners**

Has quickly grown to become one of the top life science owner/developers in Raleigh/Durham and the country—since 2019 LFREP acquired nearly \$1.3 billion in life science real estate and is actively involved in developing the 1.8 million square feet Durham Innovation District in downtown Durham.



6

Pfizer

As one of the world's largest pharmaceutical companies, Pfizer has made strategic acquisitions of properties it occupies in markets such as San Diego and Raleigh/Durham.

7

IQHQ

The San Diego-based private REIT led by Alexandria co-founder Alan Gold has raised \$1.7 billion in equity in 2020 and is currently developing one of the largest life science campuses in the country in Downtown San Diego, The Research and Development District (RaDD).

8

Wareham Development

The San Francisco-based private developer specializes in the life science/innovation campus model, with ongoing campus developments and renovations in Emeryville, Berkeley, Palo Alto and Port Richmond.

9

King Street Properties

One of the country's largest private life science developers, King Street continues to expand, particularly in Boston where construction began in 2020 on their Class A laboratory building at 101 Cambridgepark Drive—this represents the group's third major development on Cambridgepark Drive.

10

Pacific Coast Capital Partners

Has been involved in various life science/R&D projects across the country, with their latest project in North San Jose converting the seven building, 500,000 square foot Valley Tech Centre into "BioSquare Silicon Valley," catering to life science users and incubators.

Top 10 Owners Allocation By Metro

Boston	37.9%
San Francisco Bay Area	34.5%
San Diego	14.9%
Other Markets	5.8%
Raleigh/Durham	4.4%
New York City	2.1%
Maryland	2.0%
Seattle	1.8%
Philadelphia	1.5%

Sources: Newmark Research,
Real Capital Analytics

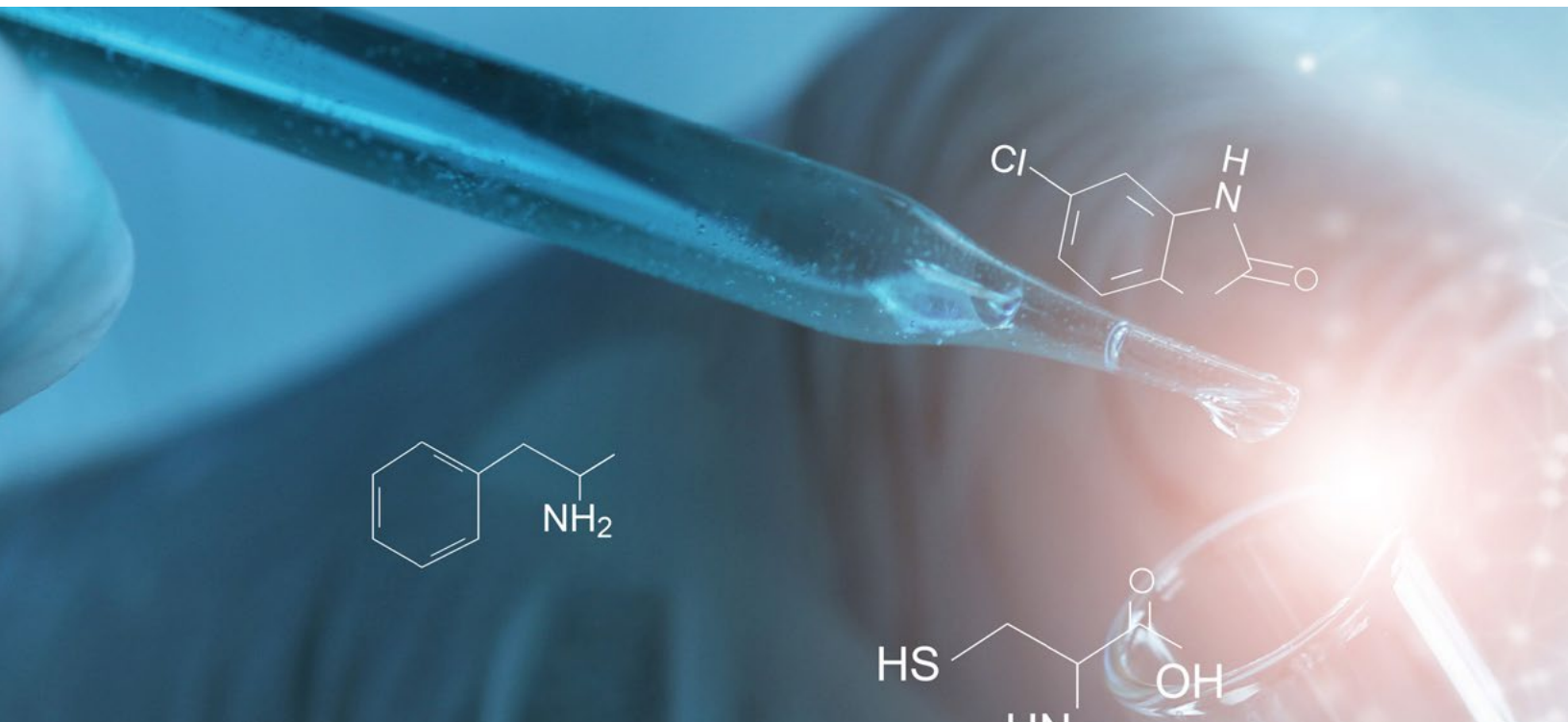
NATIONAL OVERVIEW

Top Life Science Owners

Top 10 Life Science Owners					
Company	HQ Location	Investor Type	Square Feet*	Number of Properties	Featured Markets Exposure Count
Alexandria	Pasadena, CA	Public REIT	38,000,000	300	9
BioMed Realty	New York, NY	Institutional	13,600,000	93	7
Healthpeak Properties	Irvine, CA	Public REIT	9,600,000	62	4
Ventas	Chicago, IL	Public REIT	6,100,000	26	6
Longfellow RE Partners	Boston, MA	Private / Developer	6,100,000	40	4
Pfizer Corp	New York, NY	Owner-User	4,000,000	12	5
IQHQ	Solana Beach, CA	Public REIT	2,800,000	16	3
Wareham Properties	San Francisco, CA	Private / Developer	2,700,000	45	1
King Street Properties	Boston, MA	Private / Developer	2,500,000	21	3
Pacific Coast Capital Partners	San Francisco, CA	Institutional	2,400,000	13	3

* Includes properties under construction

Sources: Newmark Research, Real Capital Analytics



Other Prominent Owners			
Company	HQ Location	Investor Type	Square Feet*
Brookfield	Toronto, Canada	Institutional	2,300,000
Diversified Healthcare Trust	Newton, MA	Public REIT	2,200,000
DivcoWest	San Francisco, CA	Institutional	2,100,000
Phase 3 RE Partners	San Diego, CA	Private/Developer	1,900,000
Karlin Real Estate	Los Angeles, CA	Private/Developer	1,800,000
Harrison Street	Chicago, IL	Institutional	1,800,000
Clarion Partners	New York, NY	Institutional	1,600,000
Starwood Capital Group	Miami, FL	Institutional	1,600,000
MLP Ventures	Radnor, PA	Private/Developer	1,600,000
Nuveen	Chicago, IL	Institutional	1,400,000

* Includes properties under construction

Sources: Newmark Research, Real Capital Analytics

NATIONAL OVERVIEW

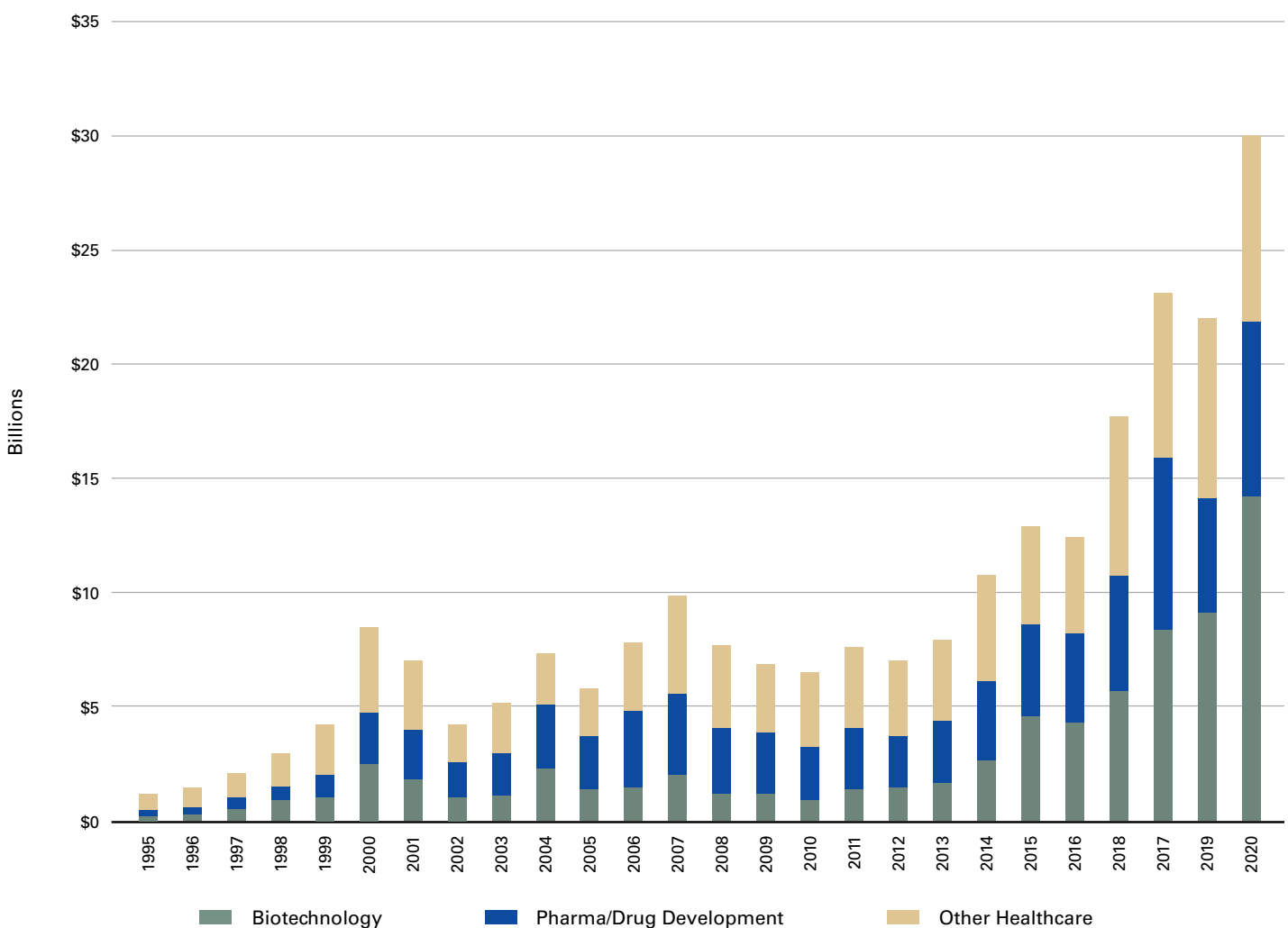
Life Science Venture Capital Funding

Healthcare venture capital funding reached \$29.9 billion in 2020, representing a 36.1% increase year-over-year and a cycle high, despite the impact of COVID-19 on the economy. Within healthcare, biotechnology represented the fastest growing vertical, with investment increasing by 56.6% year-over-year, followed by drug and pharmaceutical venture capital, where investment grew 50.2% year-over-year. The largest deal of the fourth quarter was the \$750 million, Series B investment into

biopharmaceutical company RESILIENCE, by several investors including Google Ventures and ARCH Venture Partners. While COVID-19 likely had some impact on investor psychology, particularly for secular investments not tied to the economic cycle, the red-hot year for the stock market likely also played a role—84 biotechnology companies went public in 2020, pushing investors to look further upstream at smaller, private companies at smaller valuations.

National Life Science Venture Capital Funding

United States | 1995 - 2020



Sources: Newmark Research, PWC

NATIONAL OVERVIEW

Biotechnology Total Returns vs. S&P 500

The S&P Biotechnology Index has historically outperformed the benchmark S&P 500 index by a considerable margin over the past 10 years, with an annualized total return of 21.2% vs. the S&P 500's 13.7% over the same period. Companies represented in the index include Agios Pharmaceuticals, SAGE Therapeutics and Kodiak Sciences, all three of which were founded within the past 15 years and now have a combined market cap of nearly \$45 billion.

While biotechnology and life science companies were not immune to COVID-19-related disruption in March, the index reached an all time high in December, and investors remain bullish on the sector as multiple COVID-19 vaccines have been approved and the end of the pandemic is nearing.

Biotechnology vs. S&P 500 Total Returns

United States | Indexed to 2010



Sources: Newmark Research, S&P Global

Characteristics of Successful Office-To-Life Science Conversions

Physical Building Characteristics

- Favors (but does not require) “low and wide” buildings with large floor plates in flexible zoning districts, as opposed to “tall and skinny” buildings in dense urban areas.
- Taller ceilings, typically 13-15 feet interior clear heights.
 - More established firms such as Novartis or Pfizer expect 15-18 feet floor-to-floor heights.
 - Additional height is needed for extensive HVAC equipment and power systems.
- Higher floor load requirements, supporting 100 to 150 pounds PSF for wet lab space.
 - This compares to 80 to 100 pounds for typical office space.
- Accessibility—for laboratories with significant material/input requirements, proximity to highways combined with internal truck/freight access is critical.
- Typically only 40-60% of total rentable area is for pure wet lab use—the remaining footprint is typically office and/or amenity space.

Neighborhood / Submarket Characteristics

- High concentration of nearby life science, biotechnology and/or pharmaceutical firms.
- Anchored by a research university, medical system or research institution.
- Large pipeline of STEM graduate degree holders, highly skilled candidates.
- Favorable demographic tailwinds, such as population growth and rising wages.

Features of Life Science Real Estate

- While HVAC requirements vary depending on the type of laboratory, typically recirculated air is not permitted. Additionally, if a fume hood is present, the lab will require additional replacement air.
 - These systems are typically located in mechanical penthouses on the rooftop, along with air vents.
- Redundancy, particularly for electric and critical systems in the case of power outages or natural disasters.
 - This may include features such as emergency generators and an uninterruptible power system (UPS).
 - At a minimum, 16W-20W/SF of electrical power is required.



- Additional space for chemical storage, hazardous waste storage and various types of lab equipment.
- Loading bay and a freight elevator for materials handling.
- PH neutralization systems
 - Used to treat highly acidic or alkaline wastewater that would otherwise pose an environmental and health hazard.
- Specialty suites/nodes, that may include vivariums or containment chambers.
 - Some labs require the maintenance of animal populations in vivariums, which in turn can require advanced heating and cooling systems, as well as additional HVAC systems.
 - Depending on the function of the laboratory biosafety levels can range from BSL-1 (light lab, low risk) to BSL-4 (high risk, maximum PPE usage), which accordingly escalate the build-out costs.
- Other prominent features: self closing doors, hand washing sinks, laboratory benches, autoclaves, powered air purifying respirators, exhaust HEPA filters, effluent decontamination systems.



Life Science M&A Activity

2.7%

The amount that life science M&A activity managed to grow in 2020, year-over-year.

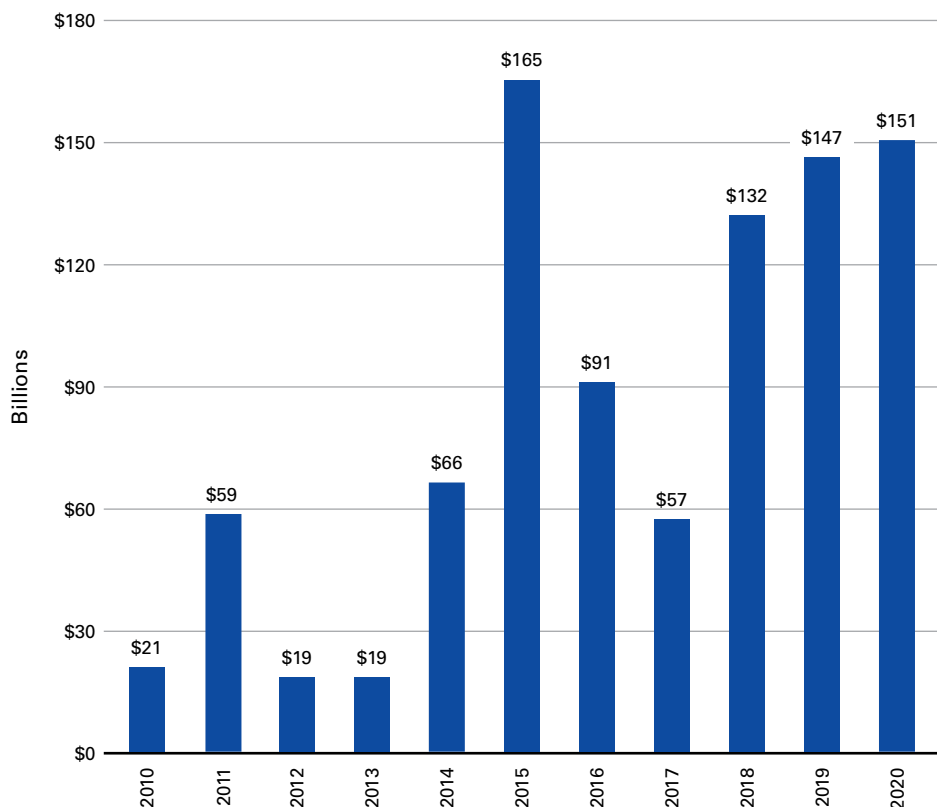
\$150.5 B

The value that Life Science M&A activity grew to in 2020, despite COVID-19 related economic disruption.

The uneven k-shape recovery has benefited secular growth sectors and industries that are perceived to be more resilient to COVID-19.

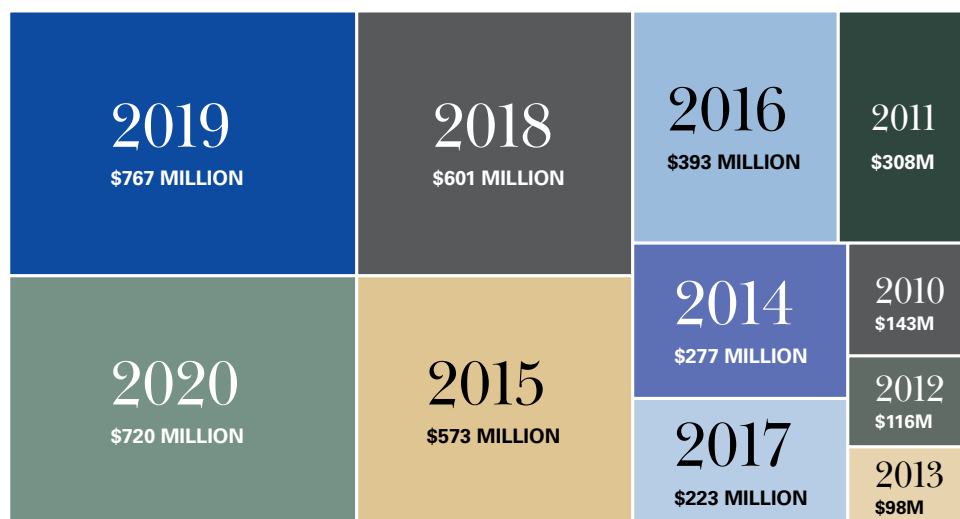
Life Science M&A Deal Volume

United States | 2010-2020



Sources: Newmark Research, Pitchbook

The largest average M&A deal sizes in a decade were recorded in 2019 and 2020, at over \$700 million per deal. This reflects the maturing of the life science and biotechnology ecosystem, which now features a fast-growing number of billion dollar "unicorn" companies.



Sources: Newmark Research, Pitchbook

Top Ten Life Science M&A Deals in 2020

#	Company	Total	Sector	HQ Location
1	Immunomedics acquired by Gilead Sciences	\$21.0 B	Biotechnology	Morris Plains, NJ
2	Cytiva acquired by GE Healthcare	\$20.7 B	Healthcare Devices	Marlborough, MA
3	Varian Medical Systems acquired by a subsidiary of Siemens	\$16.4 B	Therapeutic Devices	Palo Alto, CA
4	MyoKardia acquired by Bristol-Myers Squibb	\$13.1 B	Biotechnology	San Francisco, CA (US HQ)
5	The Medicines Company acquired by Novartis	\$9.7 B	Biotechnology	Parsippany, NJ
6	GRAIL acquired by Illumina	\$8.0 B	Biotechnology	Menlo Park, CA
7	Momenta Pharmaceuticals acquired by Johnson & Johnson	\$6.5 B	Biotechnology	Cambridge, MA
8	Forty Seven acquired by Gilead Sciences	\$4.7 B	Biotechnology	Menlo Park, CA
9	AskBio acquired by Bayer	\$4.0 B	Biotechnology	Research Triangle Park, NC
10	Principia Biopharma acquired by Sanofi	\$3.7 B	Biotechnology	San Francisco, CA

Sources: Newmark Research, Pitchbook

Top Ten Life Science M&A Deals in 2020

The ten largest life science M&A transactions of 2020 represented the continued growth by acquisition of the world's largest pharmaceutical and biotechnology firms, such as Gilead Sciences, Bristol-Myers Squibb and Novartis.

As the life science industry has advanced and become more competitive, there has been a greater need for established pharmaceutical companies to pay for innovation and reinforce their presence across life science verticals, from cell and gene therapy to oncology and medical devices.



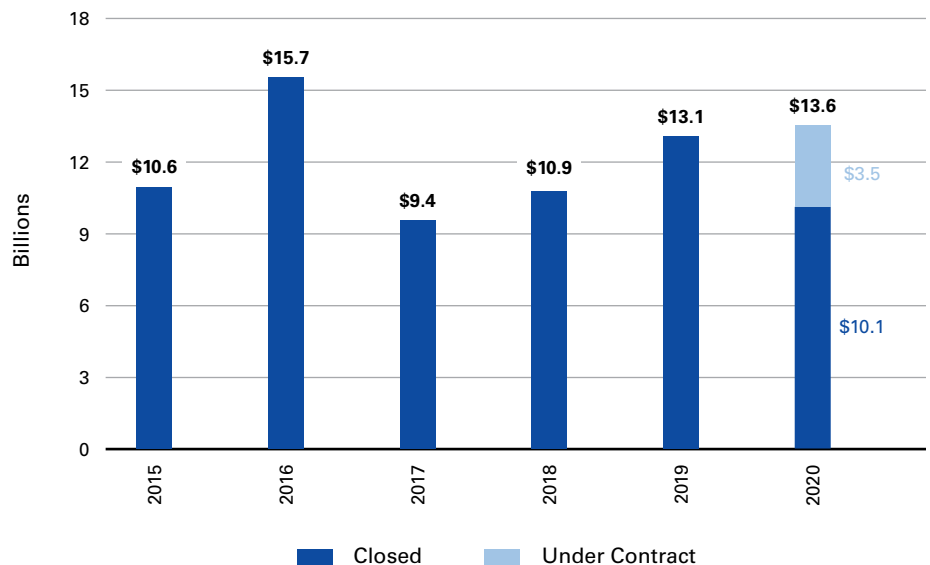
NATIONAL OVERVIEW

Capital Markets: Life Science Real Estate Activity

While life science was not immune to COVID-19 disruption, investors quickly pivoted, closing out the fourth quarter with nearly \$4 billion. For the full year, investment volume reached \$10.1 billion, with another \$3.5 billion under contract with Blackstone BioMed. Counting only closed deal volume, 2020 represented a 22.9% decline year-over-year, compared to a nearly 50% decline in overall investment volume (for all property types) over the same period.

National Life Science Volume

United States | 2015 - 2020

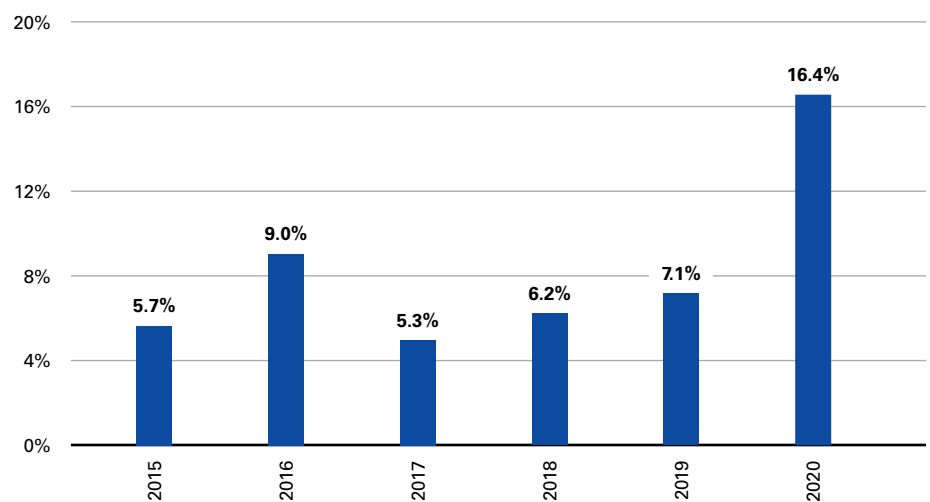


Sources: Newmark Research, Real Capital Analytics

Life science real estate has attracted the attention of a wide range of institutional groups whose investment opportunities have narrowed as a result of severe disruption in hospitality, retail and some segments of office. This has resulted in a high concentration of life science deals, either as finished product or imminent conversion/redevelopment to wet lab space, reaching a record high 16.4% of all office and flex volume in 2020.

Life Science Volume as a Percentage of Total Office Volume

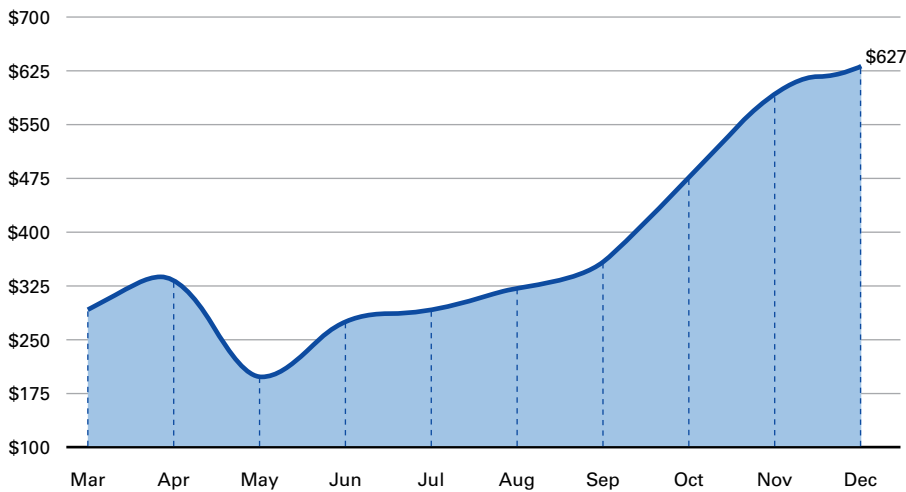
United States | 2015 - 2020



Sources: Newmark Research, Real Capital Analytics

R&D / Life Science Pricing: Shape of the Recovery

United States | March - December 2020



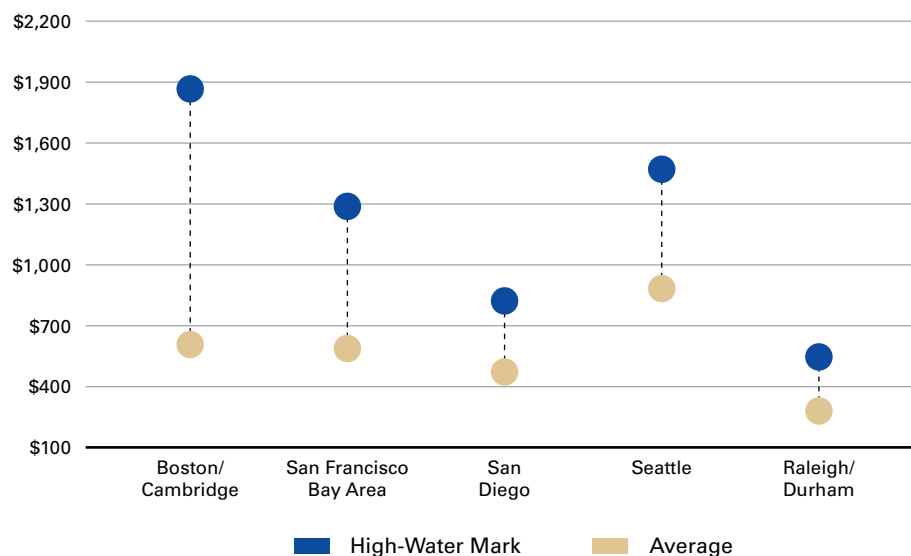
Mirroring investment volume, pricing for life science and R&D product hit its lowest point in May but has since rebounded and surpassed pre-COVID-19 levels, reaching an average of \$627 PSF in December.

In the most established clusters, the limited amount of wet lab space coupled with high demand and near-record levels of institutional dry powder has put additional upward pressure on the pricing for top quality product.

Sources: Newmark Research, Real Capital Analytics

2020 High-Water Mark Pricing in Top Markets

Various Markets | 2020



Across the top five clusters, high-water mark pricing for top quality life science product achieved a premium of 103% above 2020 averages.

Boston/Cambridge remains the tightest and most institutional life science market in the country, with high-water mark pricing reaching nearly \$1,900 PSF. The San Francisco Bay Area and Seattle recorded high-water mark pricing in excess of \$1,000 PSF.

Sources: Newmark Research, Real Capital Analytics

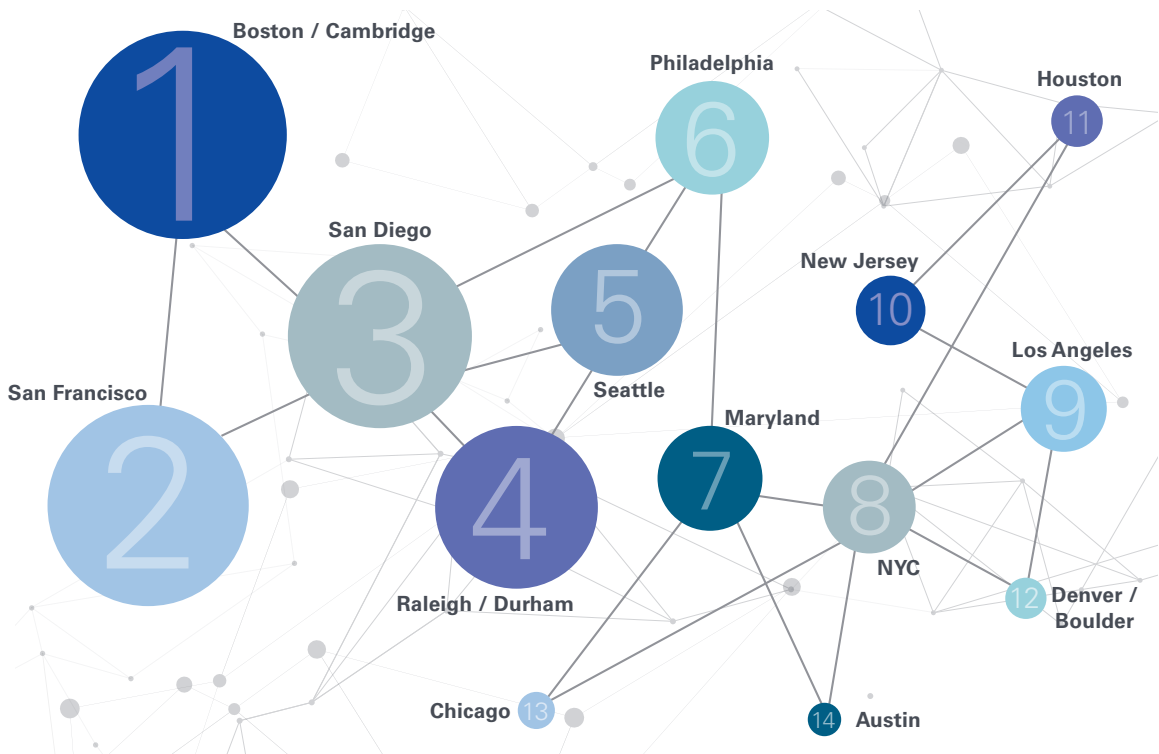
Life Science Index

Life Science Cluster Scores

The data contained in this report was used to calculate market cluster scores, which rank the top life science real estate markets in the country by a combination of market maturity, market momentum both in capital markets and leasing activity, demographic and structural components that support the life science cluster, and, finally, future growth potential.

Life Science Cluster Scores		
Rank	Markets	Market Cluster Score
1	Boston / Cambridge	82.5
2	San Francisco Bay Area	80.0
3	San Diego	71.3
4	Raleigh / Durham	67.5
5	Seattle	60.8
6	Philadelphia	60.5
7	Maryland	55.0
8	New York City	50.3
9	Los Angeles / Orange County	49.8
10	New Jersey	49.5
11	Houston	45.8
12	Denver / Boulder	44.3
13	Chicago	41.5
14	Austin	31.8

Sources: Newmark Research, Real Capital Analytics, PWC, Jobs EQ



Life Science Cluster Score Components

1

The first sub-score “market maturity,” which represents 30% of the cluster score, is a combination of wet lab inventory, rental rate, vacancy rate and VC funding. The markets at the top of this ranking are Boston and San Francisco, which have the largest wet lab inventories, highest tenant demand and the most VC funding, supporting the largest ecosystem of seed and early stage companies.

2

The second sub-score “market momentum,” which represents 30% of the cluster score, is composed of five-year rental and pricing growth, as well as 2020 capital markets activity. The markets that score the highest in this category are also Boston and San Francisco, however various other markets such as Raleigh/Durham, Philadelphia and San Diego score similarly, reflecting the fast-evolving market conditions in those markets and tightening of fundamentals.

3

The third sub-score “market innovation,” which represents 30% of the cluster score, is composed of total life science employment, concentration of life science jobs in the overall labor market and the number of top tier medical, government and institutions that support the life science ecosystem. Beyond Boston and San Francisco, markets such as Maryland (which has the highest concentration of federal health agencies) and Seattle (home to world class institutions like the Fred Hutchinson Cancer Center) score highly.

4

The final sub-score “future growth,” which represents 10% of the cluster score, is composed of the construction and conversion pipeline, as well as the expected growth rate of the life science industry over the next five years. Markets that score highly are New York City, which has over four million square feet of life science space expected to be delivered in both Manhattan and Long Island City, and Houston which is anticipating over two million square feet to be delivered by 2023, in part due to the expansion of the Texas Medical Center.

Markets	Market Maturity Score: 30%	Market Momentum Score: 30%	Market Innovation Score: 30%	Future Growth Score: 10%
Boston/Cambridge	90.0	73.3	88.3	70.0
San Francisco Bay Area	80.0	80.0	83.3	70.0
San Diego	62.5	80.0	75.0	60.0
Raleigh / Durham	55.0	83.3	65.0	65.0
Seattle	52.5	68.3	63.3	55.0
Philadelphia	50.0	73.3	68.3	30.0
Maryland	60.0	36.7	76.7	30.0
New York City	47.5	43.3	55.0	65.0
Los Angeles/Orange County	47.5	56.7	50.0	35.0
New Jersey	50.0	53.3	56.7	15.0
Houston	42.5	36.7	53.3	60.0
Denver/Boulder	47.5	36.7	48.3	45.0
Chicago	45.0	46.7	36.7	30.0
Austin	32.5	23.3	33.3	50.0

Sources: Newmark Research, Real Capital Analytics, PWC, Jobs EQ

Top Life Science Clusters

- *Click market name or map marker to jump to that market's dashboard.*

Seattle

- Southlake Union
- Seattle Waterfront
- Bothell / Eastside

Denver / Boulder

- Aurora

San Francisco Bay Area

- Mission Bay
- South San Francisco
- Emeryville
- San Carlos
- Hayward / Newark / Fremont
- Menlo Park / Palo Alto

Los Angeles / Orange County

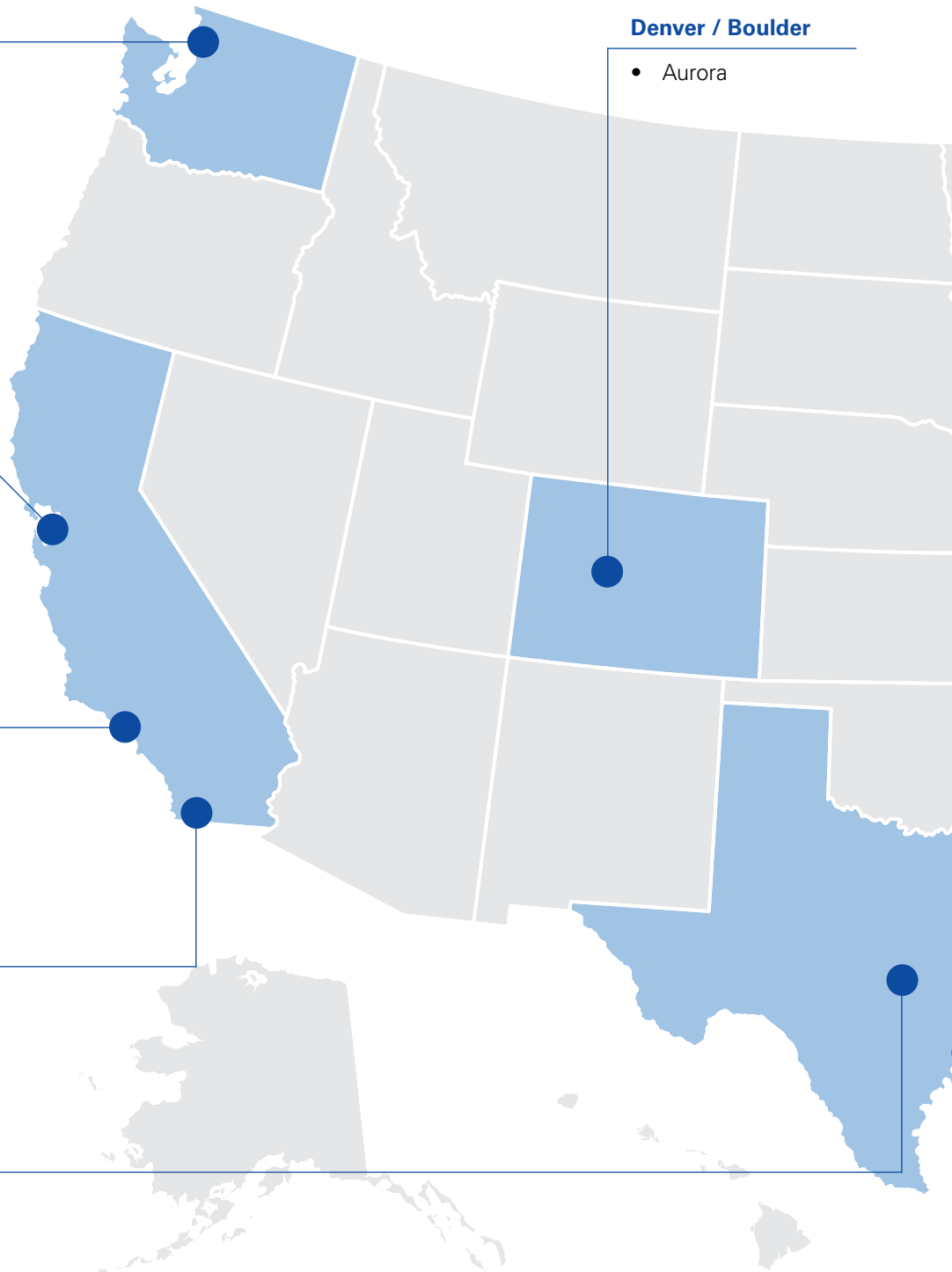
- Thousand Oaks
- San Gabriel Valley
- Downtown
- Westside

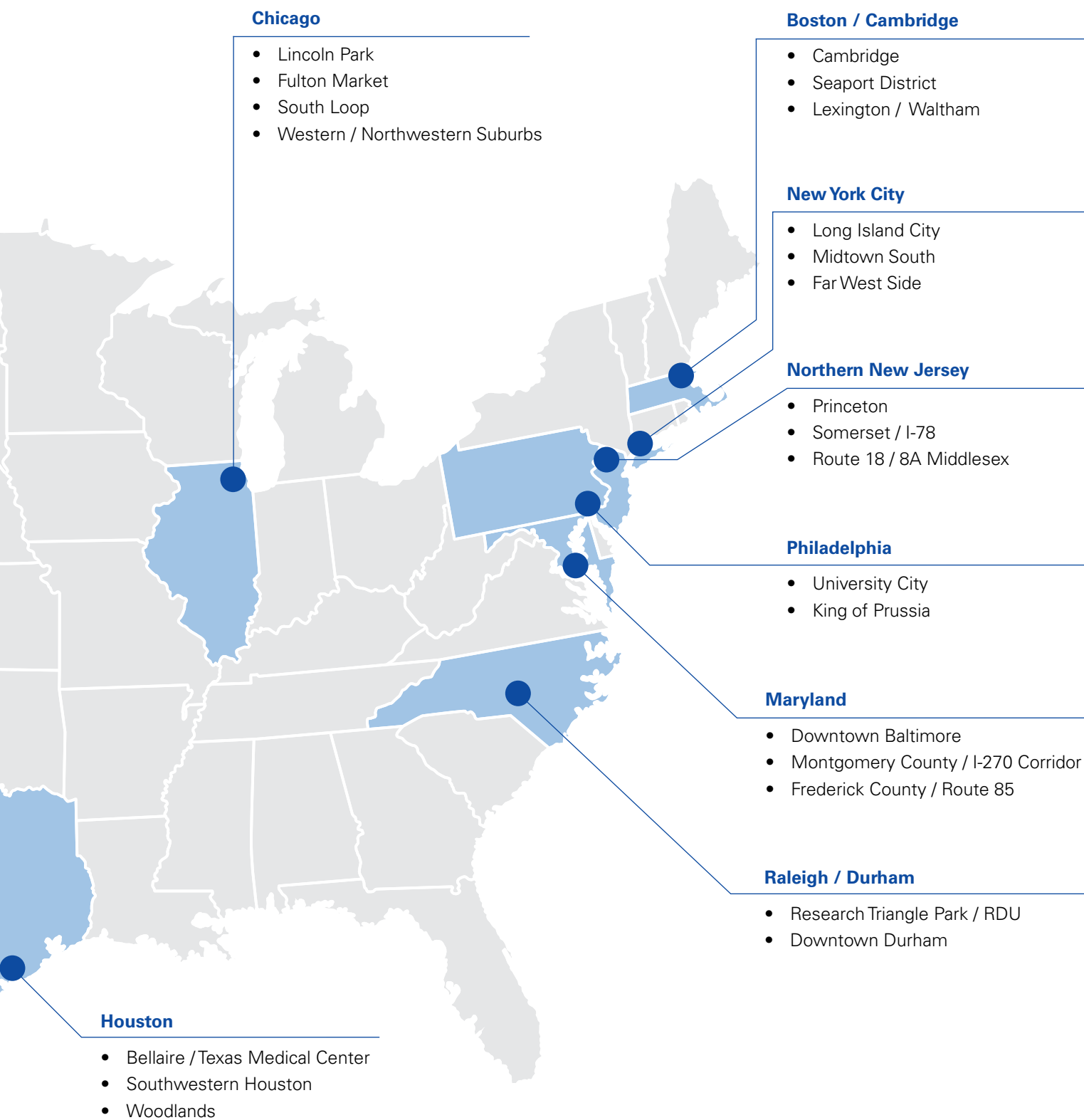
San Diego

- Torrey Pines
- University Town Center / Eastgate
- Sorrento Mesa / Valley

Austin

- Downtown / Innovation District
- Southeast Austin
- Northeast Austin / Pflugerville





Boston / Cambridge

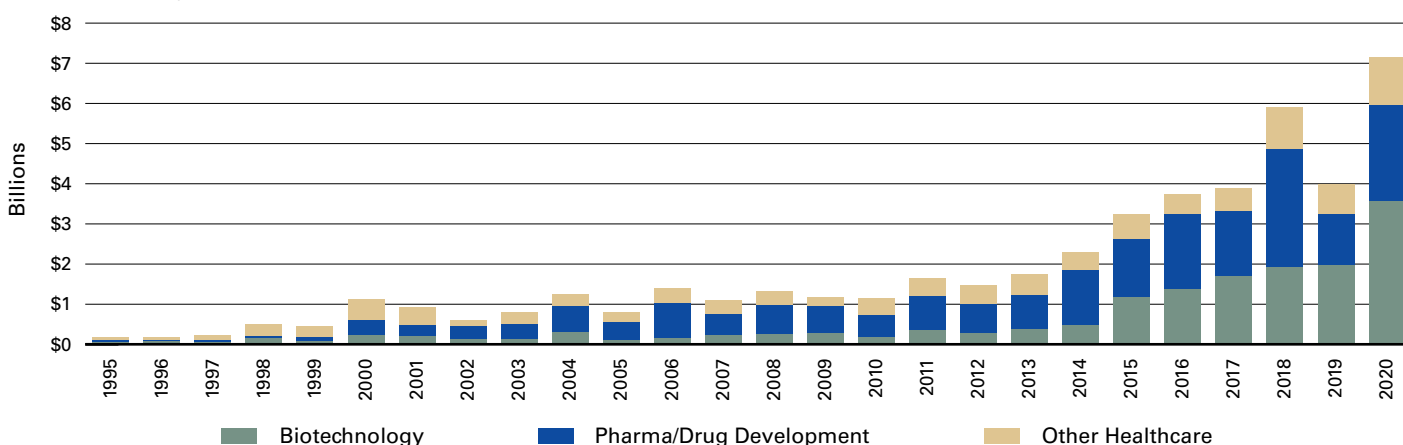
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Market Insights

- Although Greater Boston's life science market has not been immune to the impacts of the pandemic, fundamentals remain among the strongest in the country. Robust tenant demand, limited building availabilities, and high rents continue to characterize Cambridge, while the outer Boston suburbs continue to expand and capture excess demand.
- The supply-demand imbalance has been at the forefront of the Cambridge narrative for several years and continues to drive pre-leasing in new development. With much of the remaining existing space currently on the market already committed, life science tenants will struggle to find viable space options in Cambridge for the next 24 months.
- The maturation of laboratory markets outside of Cambridge is driving up inventories and the impact of COVID-19 on office demand has nearly every landlord evaluating their portfolio for potential laboratory conversions.
- In addition to conventional life science space, there is roughly two million square feet of active requirements for bio-manufacturing—this specialized product type has resulted in the repositioning of industrial assets and new ground up development. Vibalogics and Ultragenyx are just two recent firms to announce plans for research and production facilities within the metro's suburban markets.

Life Science VC Funding

Boston/Cambridge | 1995 - 2020



Life Science Submarkets

- Greater Boston & Inner Suburbs
- Cambridge
- Seaport District
- Lexington & Waltham
- Watertown

Top Universities

- MIT
- Harvard
- Northeastern
- Tufts
- Boston University
- Worcester Polytechnic Institute

Top Institutions

- Massachusetts General Hospital
- Brigham & Women's Hospital
- Dana Farber Cancer Institute
- Boston Children's Hospital
- Beth Israel Deaconess Medical Center

Market Analysis

	Greater Boston & Inner Suburbs	Cambridge	Seaport District	Lexington & Waltham
Estimated Market Size	24.5M SF of laboratory space	12.1M SF of laboratory space	1.6M SF of laboratory space	3.7M SF of laboratory space
Life Science Taking Rent Range (NNN)	\$50 - \$115 per SF	\$80 - \$115 per SF	\$75 - \$95 per SF	\$50 - \$70 per SF
Life Science Vacancy	7.3%	2.1%	16.7%	12.0%

Largest Tenants

Takeda

Sanofi

Expanding Tenants

CRISPR Therapeutics

BlueRock Therapeutics

Tenants in the Market

Accelaron Pharma

Biogen

Top Owners

Alexandria
8,300,000 SF

BioMed Realty
3,500,000 SF

Healthpeak
2,100,000 SF

DivcoWest
2,100,000 SF

King Street
Properties
2,000,000 SF

Construction Pipeline: 21.1M SF

3.7M SF

under construction

3.4M SF

planned / potential conversions

14M SF

permitted / proposed

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- No free rent
- \$150 - \$200 in tenant improvements



Capital Markets

- 2020 Sales Volume: \$3,200,000,000
- 2020 PSF: \$650

San Francisco Bay Area

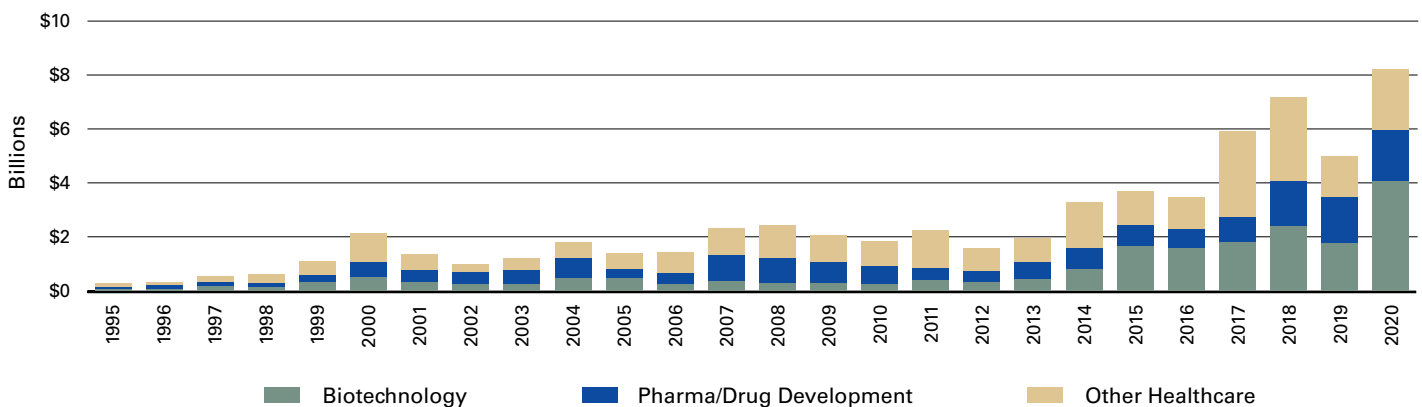
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Market Insights

- The San Francisco Bay Area life science market continues to be robust, despite the ongoing effects of the pandemic, and continues to exhibit acceleration. Tenant demand has grown and is being driven by strong funding activity coming from big pharma partnerships, IPOs, and venture capital.
- Total commercial laboratory space has grown by 13.6% in the last year to 30.0 million square feet. Another 3.3 million square feet is currently under construction with 2.8 million square feet expected to be delivered by late 2021. In addition to this confirmed inventory, many office and R&D landlords are in the process of determining if their existing vacancy can be well suited for a life science conversion.
- Alexandria Real Estate, Healthpeak, and BioMed Realty continue to dominate market share, owning over 17.7 million square feet of space combined in the Bay Area. South San Francisco continues to be the largest market, however, other markets have recorded growing demand and inventory including Emeryville/Berkeley, Hayward/Fremont, Palo Alto/Menlo Park, and Redwood City.
- Despite the increase in supply of life science product, lab rents continue to rise across the region as tenant demand remains strong. We expect to see the booming life science sector continue its rapid growth for the foreseeable future, particularly as Stanford, UCSF, and UC Berkeley remain a vital source of academic research and innovation.

Life Science VC Funding

San Francisco Bay Area | 1995 - 2020



Life Science Submarkets

- Mission Bay
- South San Francisco
- Emeryville
- San Carlos
- Hayward / Newark / Fremont
- Menlo Park/Palo Alto

Top Universities

- Stanford
- UCSF
- UC Berkeley

Top Institutions

- Gladstone Institute
- California Pacific Medical Center Research Institute

Market Analysis

	Greater Bay Area	South San Francisco	Palo Alto	San Carlos	Menlo Park	Hayward
Estimated Market Size	30.2M SF of lab space	11.0M SF of lab space	1.9M SF of lab space	1.2M SF of lab space	1.1M SF of lab space	1.1M SF of lab space
Life Science Taking Rent Range (NNN)	\$71.40 per SF	\$63 - \$75 per SF	\$69 - \$87 per SF	\$60 - \$71 per SF	\$40 - \$72 per SF	\$39 - \$51 per SF
Life Science Vacancy	8.0%	7.3%	19.7%	23.1%	2.9%	18.3%

Largest Tenants

Genentech

AbbVie

Expanding Tenants

Guardant Health

Impossible Foods

Tenants in the Market

Approximately 3M SF of demand

Top Owners

Alexandria
8,800,000 SF

Healthpeak
5,300,000 SF

BioMed Realty
4,900,000 SF

Wareham Development
2,700,000 SF

Longfellow RE Partners
1,300,000 SF

Construction Pipeline

3.3M SF

under construction

2.8M SF

expected to be delivered by late 2021

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- 3 months free rent
- \$150 in tenant improvements (lab-ready shell)



Capital Markets

- 2020 Sales Volume: \$3,000,000,000
- 2020 PSF: \$570

San Diego

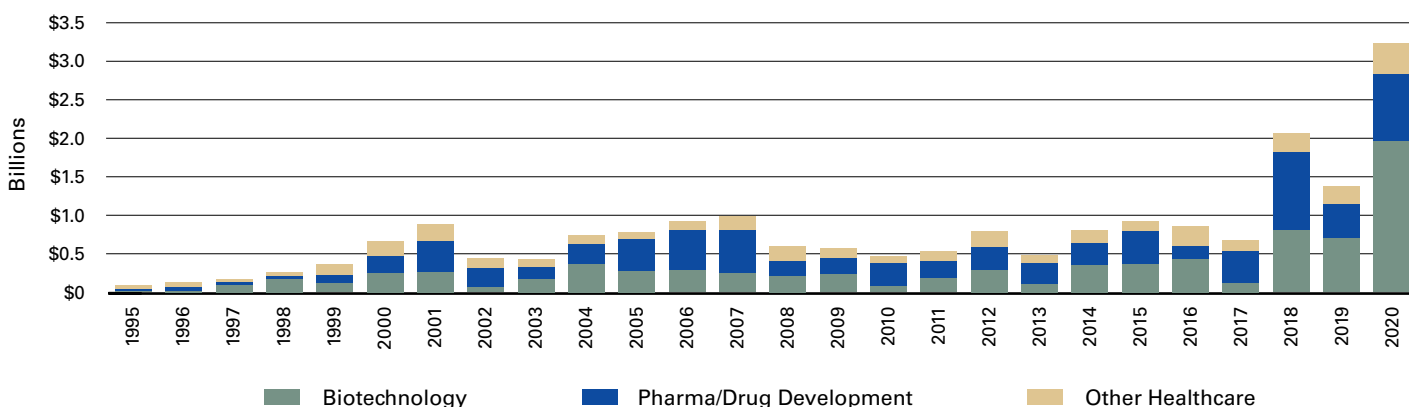
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Market Insights

- San Diego is the third largest biotech cluster in the United States and has been a growing focus of major life science REITs due to its robust research institutions and healthy investment activity from venture capital. REITs are the largest block of owners in the life science market, controlling 33% of San Diego's life science assets by value, followed by private equity groups at 21% and owner-users at 20%.
- The market continues to evolve and mature at a rapid pace as several landlords have emerged with recent acquisitions of office and flex parks that they will repurpose as life science space. Traditional office-to-life-science conversions have been extremely active primarily in the central core markets, with this trend expected to continue as more distressed office assets become conversion targets.
- Downtown San Diego traditionally has not been a target for life science or technology companies, but several prominent developers are trying to change this dynamic by appealing directly to biotech tenants. Most recently, IQHQ plans to develop up to 1.6 million square feet of lab and office space in the renamed Research and Development District (RaDD).
- The COVID-19 pandemic has created new demand for life science space and has also reinforced existing need. At least 61 San Diego companies are researching testing, treatments and vaccines for the novel coronavirus, and the outbreak has only heightened the healthcare needs of older and at-risk patients.

Life Science VC Funding

San Diego | 1995 - 2020



Life Science Submarkets

- Torrey Pines
- UTC
- Sorrento Mesa
- Sorrento Valley

Top Universities

- UC San Diego

Top Institutions

- Scripps Research Institute

Market Analysis

Total Market Size (SF)	18.3M (primary submarkets) 23.3M (Greater San Diego)
Current Taking Rent Range (NNN)	\$45 - \$65
Rental Change from 5 Years Ago	52%
Average Office Rents (NNN)	\$38.28
Vacancy Rate	7.6%

Largest Tenants

Illumina

Pfizer

Expanding Tenants

Thermo Fisher Scientific

Abbott Labs

Tenants in the Market

Bristol-Myers Squibb

Cue Health

Top Owners

Alexandria
6,100,000 SF

BioMed Realty
2,400,000 SF

Healthpeak
1,700,000 SF

IQHQ
1,600,000 SF*

Nuveen
1,000,000 SF

* Under construction

Construction Pipeline

2.5M SF

planned / potential conversions

3.6M SF

proposed construction

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- 0.5 months free rent per year of term
- \$200 in tenant improvements



Capital Markets

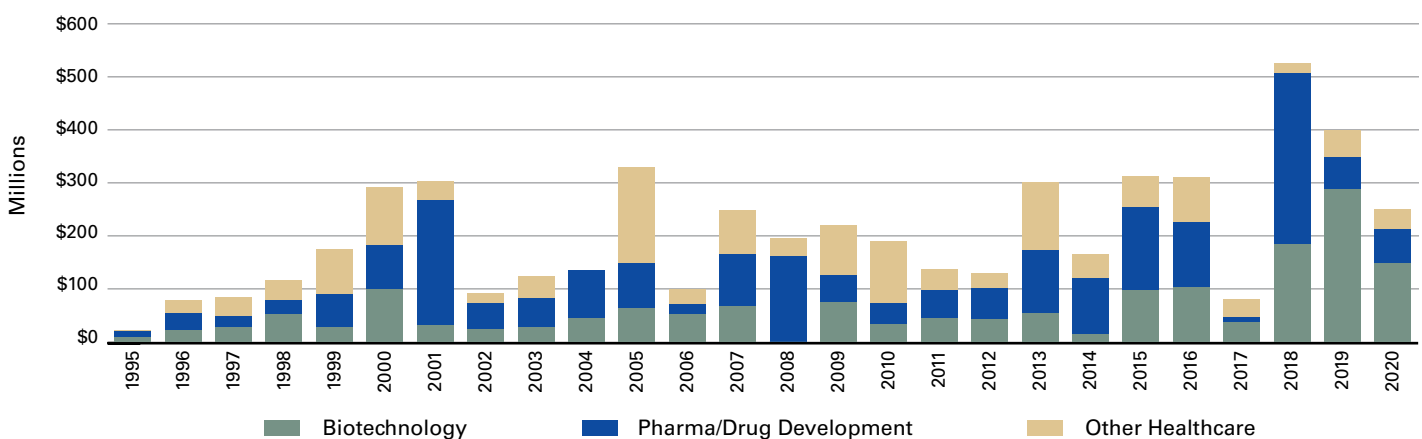
- 2020 Sales Volume: \$880,000,000
- 2020 PSF: \$426

Market Insights

- Contrasting the stagnant office sector, the life science sector has been the bright spot for the Raleigh/Durham commercial real estate market, which recorded increased leasing activity in 2020.
- While the trend of tenant relocations and institutional capital flows from other areas of the country to Raleigh has been a pattern for years, the pace is expected to increase. The Triangle is viewed as not only a safe location for life science operations due its employee base and universities, but as a market with an expanding amount of high-quality facilities to house these operations.
- Traditional flex/R&D assets continue to be acquired and converted into life science-oriented properties. With these acquisitions, owners are also investing significant amounts of capital into building upgrades as well as aesthetics improvements and new amenities. The lease terms are also being underwritten to provide significant improvement allowances to future life science tenants, which will result in higher rents.
- The biomanufacturing sector is also expanding quickly within the market. These users are targeting industrial facilities that have traditionally functioned as bulk warehouse. This demand combined with e-commerce users is driving this portion of the market to historically low vacancy rates. Biomanufacturers are looking outside of the traditional RTP submarket to find available facilities.

Life Science VC Funding

Raleigh/Durham | 1995 - 2020



Life Science Submarkets

- Research Triangle Park / RDU
- Downtown Durham

Top Universities

- Duke
- UNC Chapel Hill
- NC State University

Top Institutions

- Duke Clinical Research Institute
- NIEHS
- RTI International

Market Analysis

Total Market Size (SF)	7.7M
Current Taking Rent Range (NNN)	\$28 - \$33
Rental Change from 5 Years Ago	61%
Average Office Rents (NNN)	\$20
Vacancy Rate	17.5% (6.75% not including active conversions)

Largest Tenants

IQVIA
Duke University

Expanding Tenants

KBI Biopharma
Taysha

Tenants in the Market

Charles River Laboratories
Adverum Biotechnologies

Top Owners

Alexandria 3,900,000 SF	Longfellow RE Partners 3,200,000 SF	Starwood / Trinity Capital 1,600,000 SF	Ventas 740,000 SF	King Street Properties 500,000 SF
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Construction Pipeline

2.3M SF

planned / potential conversions

860,000 SF

of new construction

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- 0.5- 0.75 months of free rent per year of term
- \$120 - \$150 in tenant improvements



Capital Markets

- 2020 Sales Volume: \$1,000,000,000
- 2020 PSF: \$316

Seattle

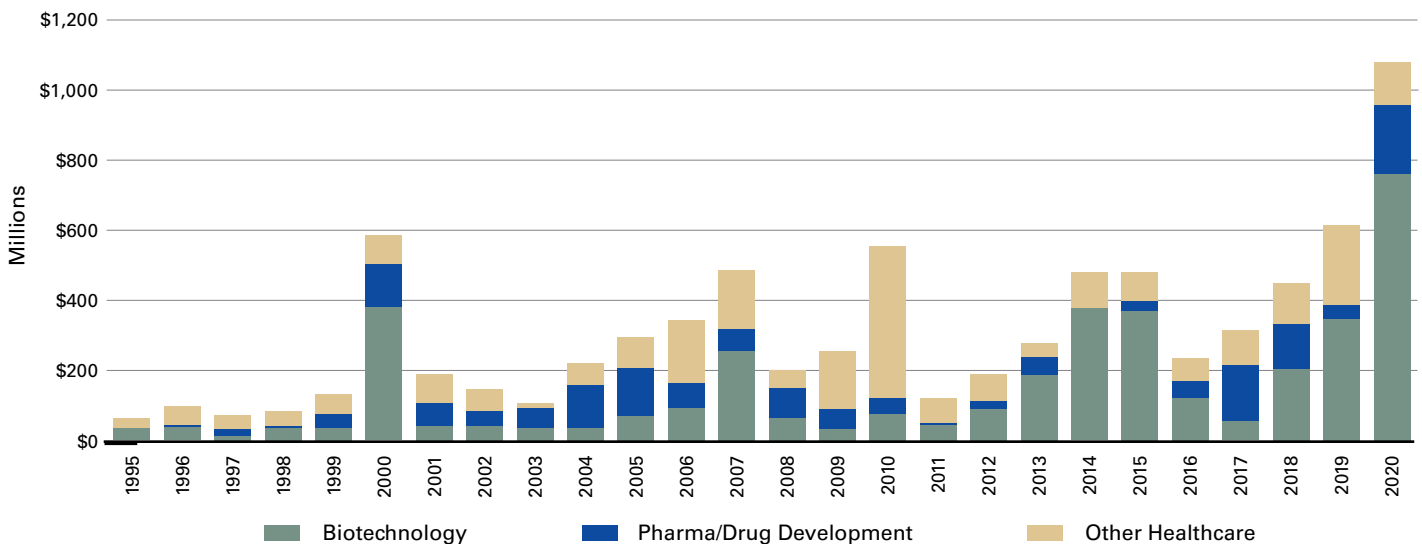
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Market Insights

- The life science market in the Puget Sound region, which is concentrated in the Lake Union submarket, has exceeded the performance of the traditional office market—additionally, the Eastside (Bothell) market where Seattle Genetics is located, has continued to perform strongly.
- Overall vacancy among Seattle life science properties was just over 4% in the third quarter and new inventory is virtually impossible to find, putting strong upward pressure on asking rents. In newly constructed life science buildings, asking rates have averaged a 67% premium over average product in the past five years.
- Investment in local life science companies has not lagged during the pandemic. Seattle Genetics announced major expansion plans after signing two strategic oncology collaborations with Merck that resulted in Merck acquiring a \$1 billion stake in the company.
- Since July, Fred Hutch has been the operations hub for the National Institutes of Health (NIH) COVID-19 Prevention Network and volunteer's at Kaiser Permanente Washington Health Research Institute were the first to test Moderna's mRNA-1273 COVID-19 vaccine.

Life Science VC Funding

Seattle | 1995 - 2020



Life Science Submarkets

- South Lake Union
- Seattle Waterfront
- Bothell (Eastside)

Top Universities

- University of Washington
- Seattle University
- Seattle Pacific University

Top Institutions

- Fred Hutchinson Cancer Research Center
- Seattle Cancer Care Alliance
- Seattle Children's Hospital

Market Analysis

	Seattle	Bothell	Total
Total Inventory (SF)	5.5M	2.1M	7.6M
Life Science Taking Rent (FSG)	\$75 - \$85	\$40 - \$55	\$45 - \$85
Rental Change from 5 Years Ago	34%	44%	41%
Total Vacancy	1.82%	9.89%	4.06%

Largest Tenants

Fred Hutch Cancer Research Center

Seattle Children's Hospital

Seattle Genetics (Seagen)

Expanding Tenants

Seattle Genetics (Seagen)

Adaptive Biotechnologies

Alder Biopharmaceuticals

Top Owners

Alexandria
1,700,000 SF

Fred Hutchinson
Cancer Center
1,500,000 SF

Seattle Children's
Hospital
1,100,000 SF

BioMed Realty
1,000,000 SF

Kilroy Realty
460,000 SF

Construction Pipeline

	Seattle	Bothell	Total
Under Construction / Recently Delivered (SF)	318,000	140,000	458,000
Proposed (SF)	1.9M	0M	1.9M

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- 1-5 months of free rent
- \$150-\$175 in tenant improvements (10+ year deal in new construction)
- \$5-\$25 in tenant improvements (5-10 year deal in existing building)



Capital Markets

- 2020 Sales Volume: \$600,000,000
- 2020 PSF: \$900

Philadelphia

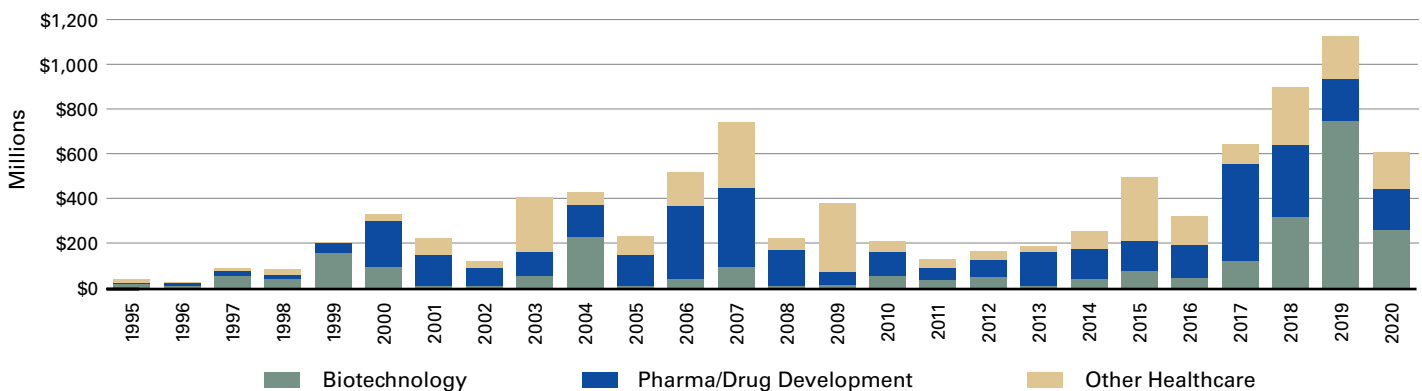
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Market Insights

- Greater Philadelphia is one of the largest life science markets by employment and lab inventory nationwide, supported by its rich concentration of colleges and universities, renowned healthcare institutions, and a strong legacy of pharmaceutical manufacturing. Overall, the Philadelphia MSA's life science sector accounts for nearly 55,000 jobs, an 8.1% increase in the past decade.
- The market's world-class healthcare and educational institutions have fostered expanding innovation in biotech research and development, especially relating to novel gene and cell therapies. This has led to Greater Philadelphia adopting the moniker, "Cellicon Valley", and has caused out-of-market life science firms working in these specific spheres to either relocate or establish satellite facilities in the region.
- Public and private funding for regional life science firms has grown dramatically. Pennsylvania retained its ranking as the 4th largest recipient of NIH grants in the country in 2020, with institutions and firms in the state awarded over \$2.0 billion, a 3.5% increase over 2019. More than half of this funding was allocated to institutions within the city of Philadelphia.
- As of 4Q20 only one ground-up life science project is under construction and offering available space in Greater Philadelphia (One uCity Square). The dearth of available, existing lab product is driving tenant interest to multiple proposed projects and is encouraging some landlords of traditional office properties to pursue partial or full conversions.

Life Science VC Funding

Philadelphia | 1995 - 2020



Life Science Submarkets

- University City
- King of Prussia
- The Navy Yard
- 202 Corridor
- Spring House

Top Universities

- Temple
- Drexel
- University of Pennsylvania

Top Institutions

- Children's Hospital of Philadelphia (CHOP)
- University of Pennsylvania Medical System

Market Analysis

Total Market Size (SF)	8.6M
Current Taking Rent Range (NNN)	\$22 - \$55
Rental Change from 5 Years Ago	100%
Average Office Rents (FSG)	\$30.20
Vacancy Rate	15.2% (market-wide) 3.0% (University City)

Largest Tenants

Merck
GlaxoSmithKline

Expanding Tenants

Charles River Laboratories
Spark Therapeutics

Tenants in the Market

Passage Bio
Drexel University

Top Owners

MLP Ventures 1,600,000 SF	Ventas 1,200,000 SF	Brandywine 700,000 SF	Ensemble 600,000 SF	MRA Group 500,000 SF
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Construction Pipeline

732,000 SF under construction	1.8M SF proposed new construction	1.4M SF proposed in conversions
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Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- 0 to 0.5 month free rent per year of term
- \$60- \$150 in tenant improvements



Capital Markets

- 2020 Sales Volume: \$600,000,000
- 2020 PSF: \$900

Maryland

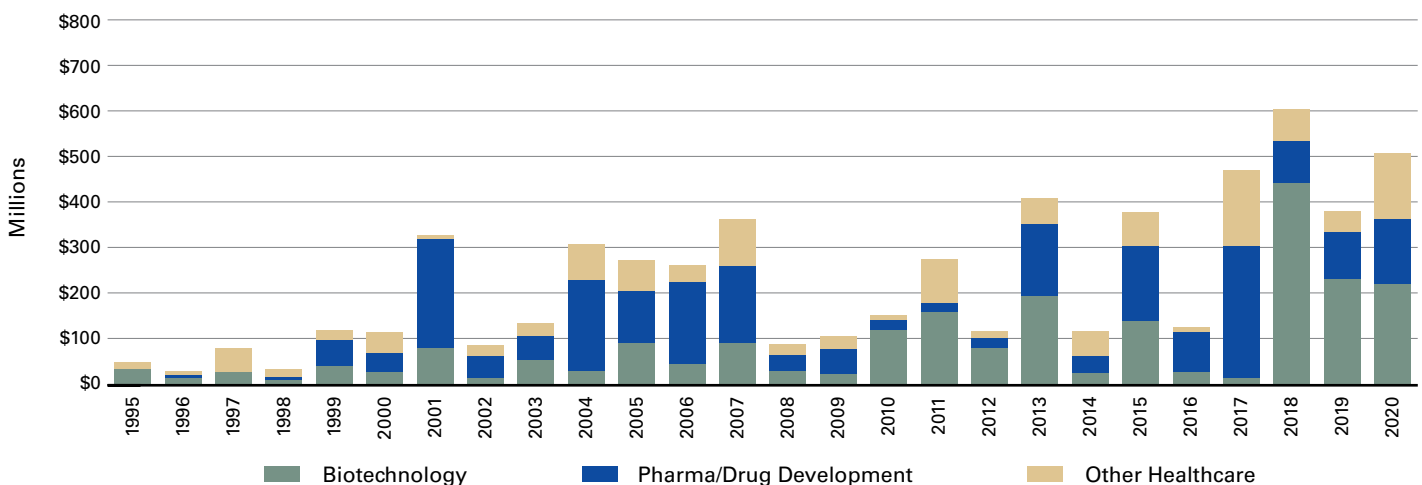
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Market Insights

- Maryland and the overall BioHealth Capital Region feature some of the most prominent government research and medical institutions in the United States, including the National Institute of Allergies and Infectious Disease (NIAID), NIH, the National Cancer Institute, FDA, HHS, and Fort Detrick, many of which are on the frontlines of the COVID-19 pandemic.
- Demand for life science product remains high and several large life science projects are planned for the I-270 corridor, from Rockville to Frederick County—however, because these projects will not be delivered in the short term, well-located flex and warehouse buildings are being considered for conversion.
- Baltimore has fostered a large pipeline of early stage companies, cultivated by organizations such as Johns Hopkins Technology Ventures—however, this talent and company pipeline often cannot remain local, as there is a severe lack of pure wet lab space in the city CBD.
- Many prominent life science companies have relocated to, or added locations in, Maryland in the past 12 months, including oncology company Genetron and biotechnology company Autonomous Therapeutics.

Life Science VC Funding

Maryland | 1995 - 2020



Life Science Submarkets

- I-270 Corridor (Montgomery County)
- Urbana & Route 85 (Frederick County)
- Riverside Research Park (Frederick County)
- Downtown Baltimore City

Top Universities

- Johns Hopkins
- University of Maryland

Top Institutions

- The National Institutes of Health
- National Cancer Institute
- Department of Health and Human Services (among 18 federal agencies in the region)

Market Analysis

	Maryland	Baltimore
Market Size (SF)	11.4M	3.3M
Life Science Taking Rent (NNN)	\$22 - \$42	\$37 - \$39
Rental Change from 5 Years Ago	41.2%	13.5%
Office Rents (FSG)	\$28.97	\$24.13
Life Science Vacancy Rate	3.6%	1.0%

Largest Tenants

Maryland	Baltimore
AstraZeneca	BD Diagnostics
GSK	Catalent

Expanding Tenants

Maryland	Baltimore
Novavax	Emergent Biosciences
Kite Pharma	Thrive Early Detection

Tenants in the Market

Maryland	Baltimore
MilliporeSigma (BioReliance)	Greybug
Adaptive Phage Therapeutics	WindMil

Top Owners

Alexandria 3,000,000 SF	GI Partners 930,000 SF	Ventas 680,000 SF	Blackstone (Under contract) 410,000 SF	Matan Companies 340,000 SF
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Construction Pipeline

180,000 SF

under construction

3.0M SF

proposed new construction

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

Maryland

- 0.5 month free rent per year of term
- \$110- \$125 in tenant improvements

Baltimore

- 0.4 month free rent per year of term
- \$60- \$80 in tenant improvements



Capital Markets

- 2020 Sales Volume: \$150,000,000
- 2020 PSF: \$497

New York City

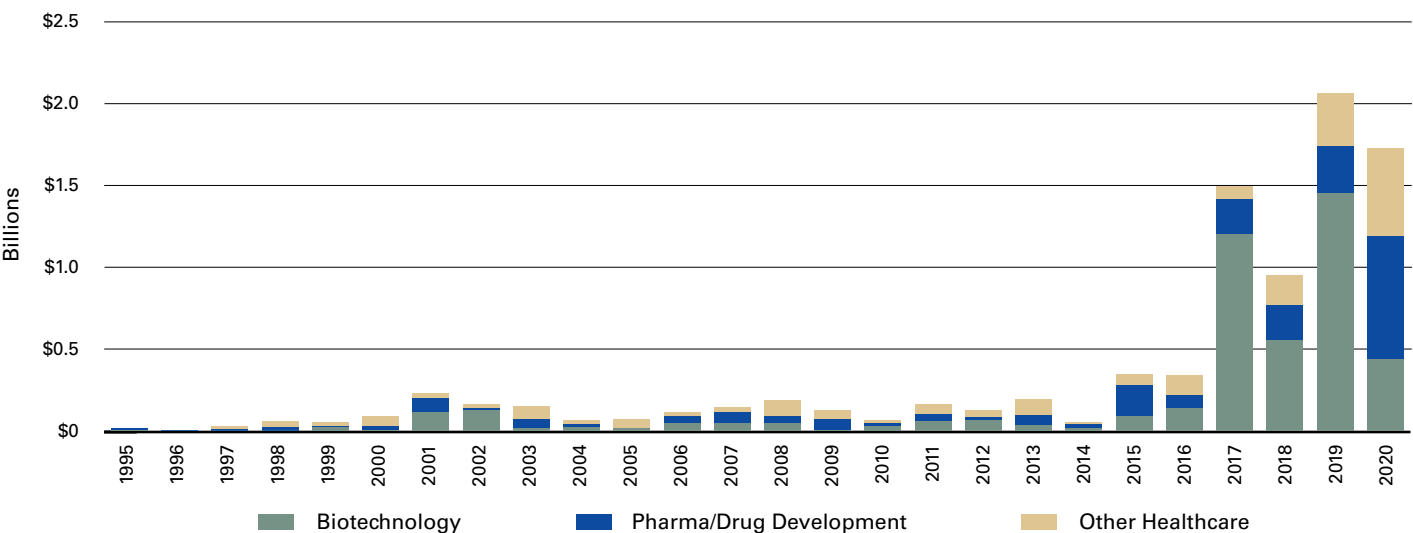
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Market Insights

- Although New York City's life science cluster is still in its infancy, the city has all the major building blocks for future growth, including the largest concentration of academic institutions in the world.
- The incubator model for biotechnology and life science companies has been increasingly adopted in NYC, with organizations such as BioBat in the Brooklyn Army Terminal, Biolabs sponsored by NYU Langone, and Alexandria's Launchlabs offering lab space and collaborative environments for seed stage companies to develop and expand.
- Alexandria is the largest life science player in Manhattan and plans to further expand the Alexandria Center with a 550,000 square foot North Building planned to be completed in 2024—this will enhance the already extensive tenant roster, which includes Bristol-Myers Squibb, Eli Lilly and Accelerator Life Science Partners.
- Manhattan's life science footprint will soon expand northward to Harlem with a 1.1 million square foot master-planned development called the Manhattanville Factory district—the development by Janus Property will feature an estimated 600,000 square feet of lab and office space.

Life Science VC Funding

New York City | 1995 - 2020



Life Science Submarkets

- Long Island City
- Midtown South (East Side)

Top Universities

- Columbia University
- Rockefeller University
- NYU

Top Institutions

- Weill Cornell Medicine
- Cornell University Irving Medical Center (CUIMC)
- NYU Langone Health

Market Analysis		
	Manhattan	Long Island City
Market Size (SF)	1.3M	0M
Life Science Taking Rent (NNN)	\$90 - \$110	\$65 - \$85
Office Rents	\$78.77	\$51.35
Life Science Vacancy Rate	7.6%	0.0%

Largest Tenants	Expanding Tenants
NYU	C16
Genome Center	Black Diamond

Top Owners				
Alexandria 1,300,000 SF	Minskoff / KTCU 410,000 SF	Deerfield 330,000 SF	Taconic Silverstein 330,000 SF	GFP / King Street 260,000 SF

Construction Pipeline	
Manhattan	Long Island City
3.0M SF	1.2M SF

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

New York City

- 4-6 months free rent on existing product
- 8-12 months free rent on future deliveries

Manhattan

- \$125- \$150 in tenant improvements

Long Island City

- \$125- \$150 in tenant improvements

Los Angeles / Orange County

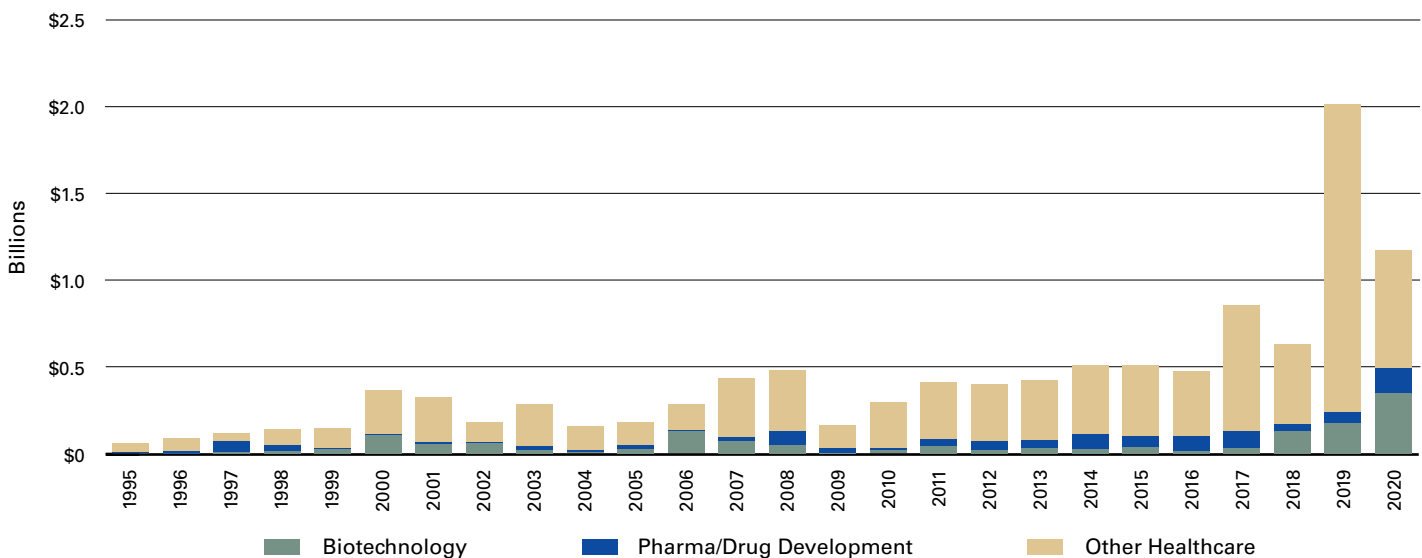
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Market Insights

- While the Los Angeles metropolitan area is an emerging life science market, it has the building blocks to become a major cluster, with leading private research institutions such as Huntington Medical Research Institute and top research universities such as UCLA, Cal Tech, UCI and USC.
- The existing market lab inventory is largely owner-occupied by companies such as Amgen, Kite Pharma and Quest Diagnostics.
- Incubator, lab and coworking spaces, such as LabLaunch, HATCHspaces, BioLabs at The Lundquist Institute, and Cal State LA BioSpace, are supporting an increasing amount of life science startups, driven by top life science educational institutions, such as UCLA, Caltech and others in the Cal State system.
- Los Angeles has a substantial VC funding presence in part due to its proximity to Silicon Valley—long-time VC firms like Upfront Ventures are devoting more of their attention to life science and healthtech, joined by other firms like Anthos, B Capital Group, Fika Ventures, MarsBio, Pritzker Group, and Summation Health Ventures.

Life Science VC Funding

Los Angeles/Orange County | 1995 - 2020



Life Science Submarkets

- Thousand Oaks
- San Gabriel Valley
- Downtown Los Angeles
- Westside
- South County (Orange County)

Top Universities

- UCLA
- UCI
- USC
- California Institute of Technology

Top Institutions

- Hoag
- Cedars-Sinai
- City of Hope

Market Analysis

Total Market Size (SF)	11.0M
Current Taking Rent Range (FSG)	\$58.01
Rental Change from 5 Years Ago	38%
Average Office Rents	\$40.43
Vacancy Rate	5.8%

Largest Tenants

Amgen Inc.	Medtronic Diabetes	Gilead Science Inc (Los Angeles)
Allergan PLC	Teva Pharmaceutical Industries	Par Pharmaceutical (Orange County)

Expanding Tenants

Kite Pharma
Arrowhead Pharmaceuticals

Top Owners

Rexford Industrial REIT 580,000 SF	Westbrook Partners 530,000 SF	Edwards Lifescience Corp 500,000 SF	Baxter Healthcare Corp 480,000 SF	Hoag 410,000 SF
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Construction Pipeline

170,000 SF

under construction

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- 0.5 month free rent per year of term
- \$150 - \$175 in tenant improvements



Capital Markets

- 2020 Sales Volume: \$480,000,000
- 2020 PSF: \$300

New Jersey

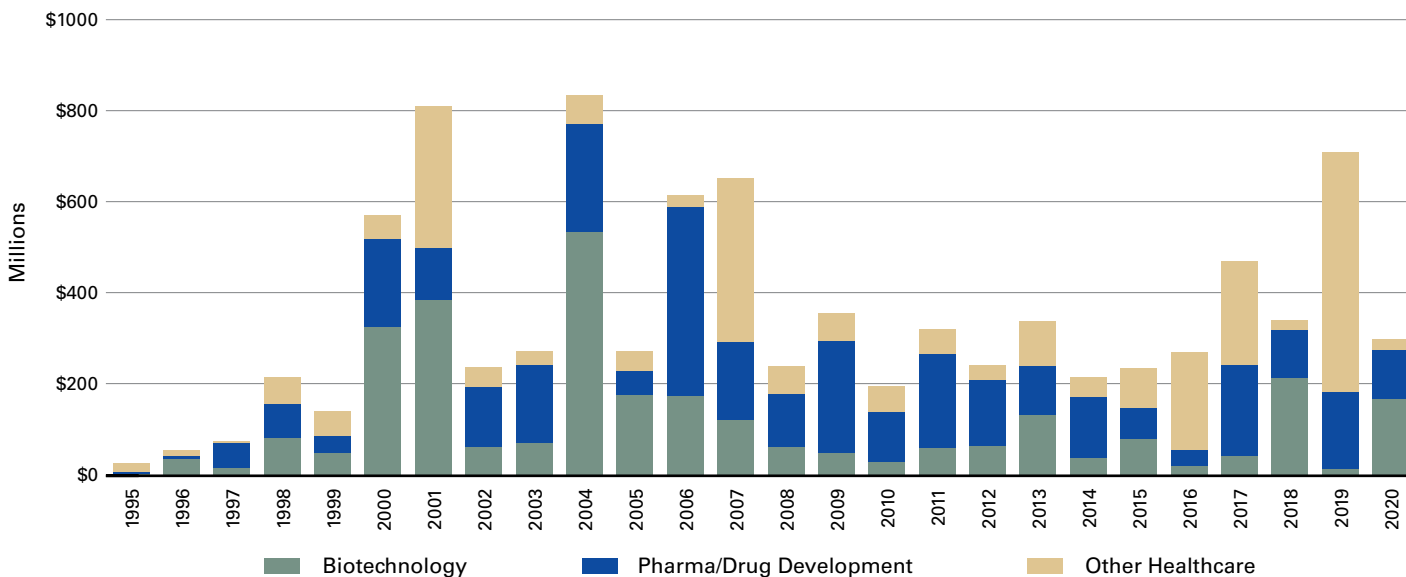
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Market Insights

- New Jersey's major lab campuses have historically been concentrated in Somerset, Middlesex and Mercer Counties however, emerging life science nodes such as ON3 in Nutley and 95 Greene Street in Jersey City are capitalizing on demand further north and closer to Manhattan.
- New Jersey is home to several pharmaceutical companies that are developing vaccines for COVID-19 including Pfizer, Sanofi, OncoSec Medical and Janssen Pharmaceuticals—additionally, 13 of the world's top 20 pharmaceutical companies are located within the state's borders.
- Seven doctoral universities, including three elite (R1) research universities (Princeton, Rutgers and NJIT), produce top talent and support advances in medicine and biotechnology.
- Life science vacancy has fallen from 25.3% to 15.3% over the past five years due to strong tenant demand including recent major leases with PTC Therapeutics in Bridgewater and WuXi Biologics in Cranbury, which has spurred investor demand from groups such as Thor Equities and Harrison Street Real Estate.

Life Science VC Funding

New Jersey | 1995 - 2020



Life Science Submarkets

- Princeton
- Somerset / I-78
- Route 18 / 8A Middlesex

Top Universities

- Princeton University
- Rutgers
- NJIT

Top Institutions

- Hackensack Meridian Health
- Atlantic Health System
- Rutgers Cancer Institute of New Jersey

Market Analysis

Total Market Size (SF)	8.8M
Current Taking Rent Range (NNN)	\$25 - \$35
Rental Change from 5 Years Ago	21%
Average Office Rents (FSG)	\$30.07
Vacancy Rate	15.3%

Largest Tenants

Bristol-Myers Squibb
Merck

Expanding Tenants

Celularity
Quest Diagnostics

Tenants in the Market

Sanofi
Fusion

Top Owners

Celgene 1,900,000 SF	Thor Equities 1,300,000 SF	Lincoln Equities Group 1,200,000 SF	PCCP 900,000 SF	Bristol-Meyers Squibb 830,000 SF
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Construction Pipeline

250,000 SF

under construction

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- 0-4 months free rent
- \$60 - \$80 in tenant improvements



Capital Markets

- 2020 Sales Volume: \$260,000,000
- 2020 PSF: \$200

Houston

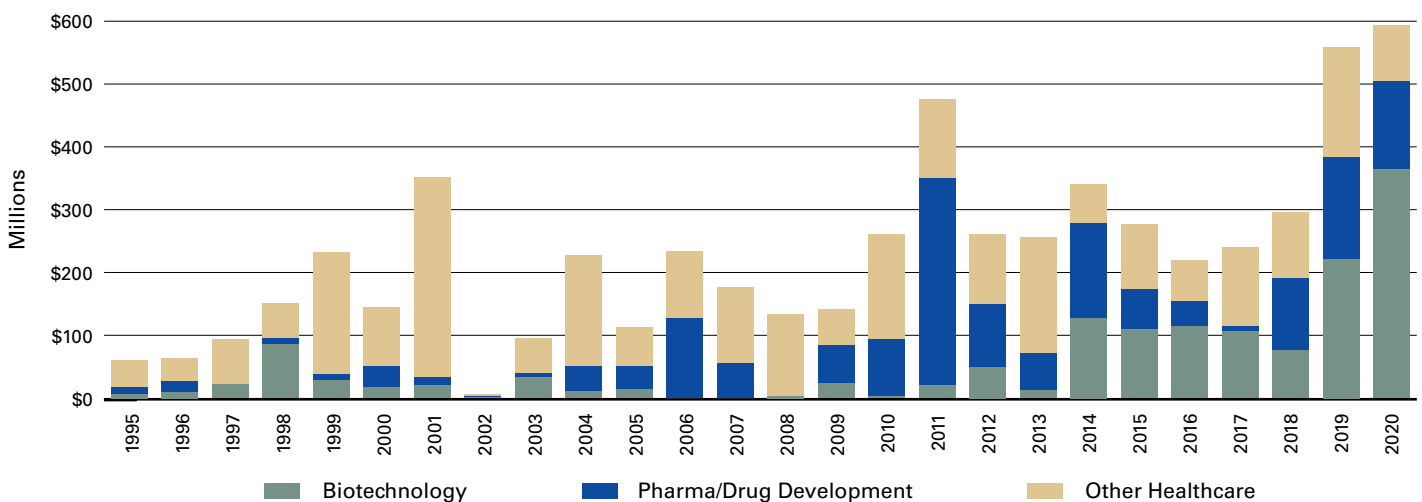
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Market Insights

- The Houston region is home to more than 18,000 biotech specialists, 25,700 of the world's top medical researchers and 50,000 life science students, reinforcing its strong foundation in life science and medical research. Additionally, nearly \$180 million in venture capital has been invested in life science and health-related tech companies in 2019.
- As a hub for medical device manufacturing, pharmaceuticals and health research, Houston has more than 1,760 life science companies, cutting-edge health care facilities and research institutions.
- The Texas Medical Center (TMC) Innovation Institute represents the center of Houston's life science industry and aims to become the global leader in life science innovation, research and education. It's new 3.7 million square foot development, TMC3, will help solidify the system as one of the largest life science clusters in the country.
- Additionally, TMC's Innovation Institute has developed successful accelerator and incubator programs, TMCx and TMCx+, which focus on early-stage and seed-stage companies in medical devices, digital health care services, diagnostics and therapeutics sectors.

Life Science VC Funding

Texas | 1995 - 2020



Life Science Submarkets

- Bellaire / Texas Medical Center
- Southwestern Houston
- Woodlands

Top Universities

- Texas A&M
- Baylor College of Medicine
- Texas State University
- University of Houston
- HCC Coleman College for Health Sciences

Top Institutions

- Texas Medical Center
- UTHealth
- BioScience Research Collaborative
- The University of Texas MD Anderson Cancer Center

Market Analysis

Total Market Size (SF)	7.0M
Current Taking Rent Range (NNN)	\$21 - \$27
Rental Change from 5 Years Ago	5%
Average Office Rents (FSG)	\$29.48
Vacancy Rate	5.2%

Largest Tenants

LivaNova

Lonza

Expanding Tenants

Celltex

VGXI

Tenants in the Market

Pernix Therapeutics

iBioChips

Top Owners

Medistar Corporation
485,000 SF

Zellar Realty
270,000 SF

Construction Pipeline

2.0M SF

projected to deliver by 2023

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- Minimal free rent
- \$175- \$225 in tenant improvements



Capital Markets

- 2020 Sales Volume: \$21,000,000
- 2020 PSF: \$156

Denver / Boulder

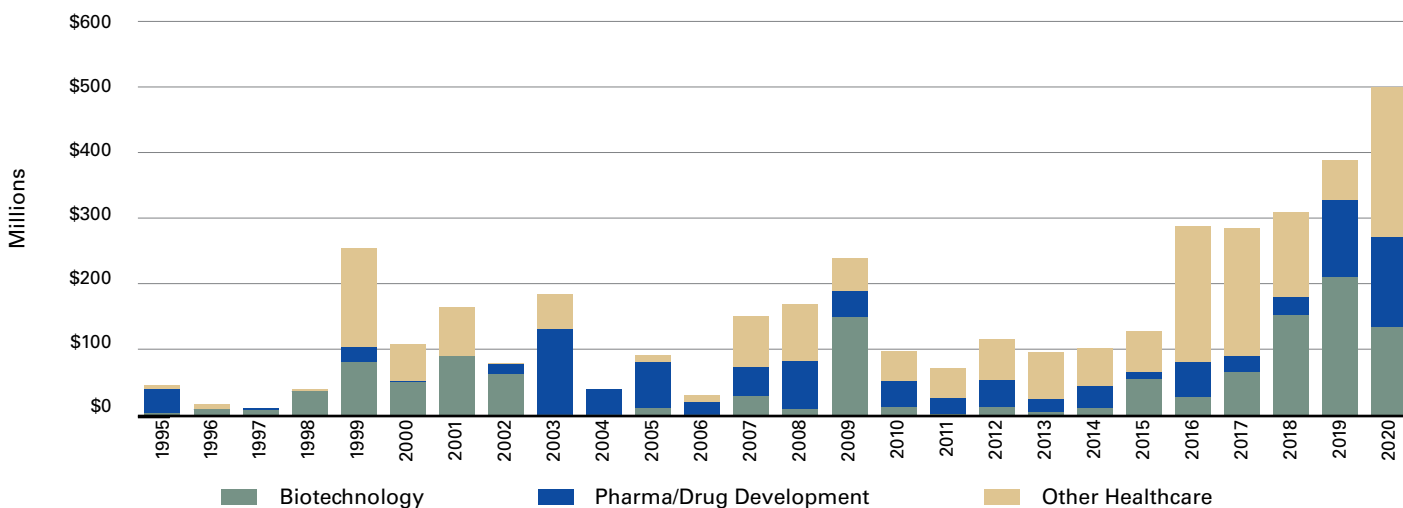
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Market Insights

- Boulder is Colorado's life science hub, with over one million square feet of space currently occupied by life science companies, supported by one of the most highly educated workforces in the United States, with 37% of residents holding an advanced degree.
- According to the Colorado Office of Economic Development, there are 33 federal labs in Colorado, which is one of the highest concentrations of federally funded science research labs in the United States.
- Notable local corporations with a Boulder presence like BI Biopharma, SomaLogic, AGC Biologics, CordenPharma and Pfizer actively collaborate with local universities, such as the University of Colorado Boulder and Colorado State University as well with multinational companies such as Amgen, which has deep roots in Boulder.
- Array Biopharma, a company largely focused on the discovery and development of small molecule drugs, represents one of Boulder's most successful life science companies—Pfizer's acquisition of the company for \$11.4 billion in 2019 cemented its status a life science heavyweight and reinforced the strength of the Boulder market.

Life Science VC Funding

Denver/Boulder | 1995 - 2020



Life Science Submarkets

- Aurora

Top Universities

- University of Colorado Boulder
- Colorado State University

Top Institutions

- Fitzsimons Innovation Community
- Advanced Diagnostics Laboratories at National Jewish Health

Market Analysis

Total Market Size (SF)	1.5M
Current Taking Rent Range (NNN)	\$22 - \$32
Rental Change from 5 Years Ago	16%
Average Office Rents	\$28.47
Vacancy Rate	2.9%

Largest Tenants

Avexis (Novartis)
Pfizer

Expanding Tenants

Medtronic
Archer DX

Tenants in the Market

Sophia Genetics
Rottendorf Pharma

Top Owners

Novartis 700,000 SF	Fitzsimons Innovation Community 520,000 SF	AGC Biologics 180,000 SF	Invesco 150,000 SF	Crestone Real Estate 120,000 SF
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Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- Minimal free rent
- \$60- \$120 in tenant improvements



Capital Markets

- 2020 Sales Volume: \$150,000,000
- 2020 PSF: \$348

Chicago

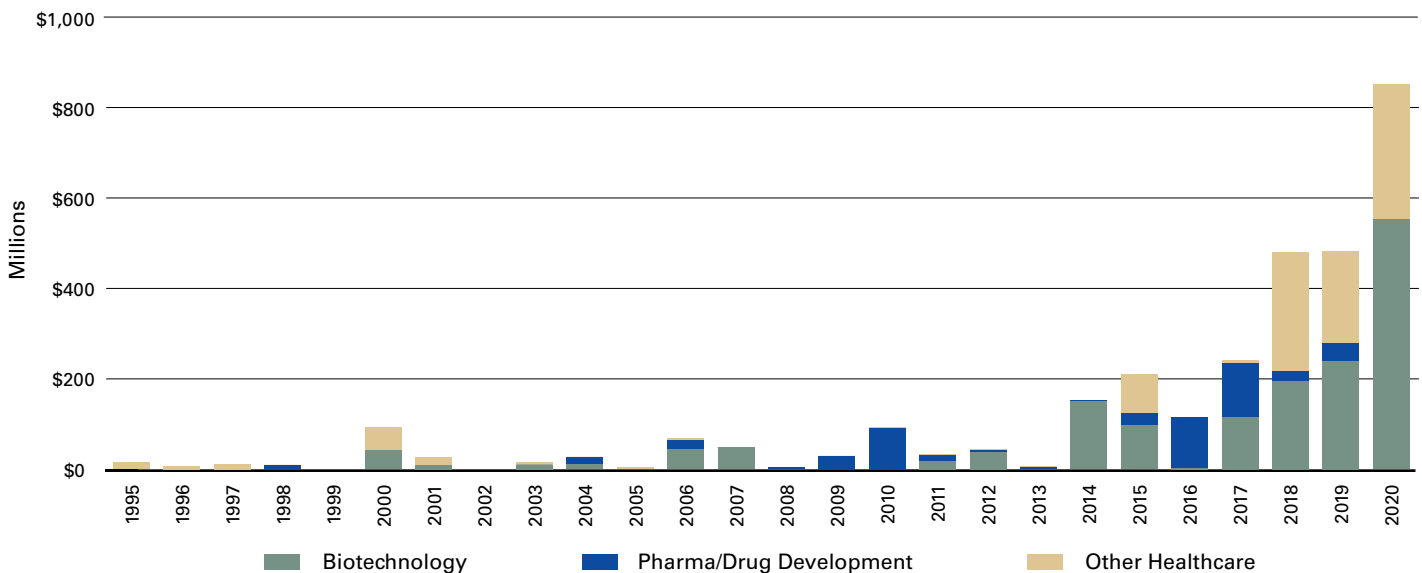
[◀ Back to Map Page](#)

Market Insights

- Chicago is home to 11 research universities with a combined \$2.5 billion in R&D spending, and is the fifth largest life science metro by employment with 592,000 total jobs, with 157,000 new jobs expected to be added by 2025.
- Many large pharmaceutical and medical device companies are located in Chicago's metropolitan area including Abbott Labs, Abbvie, Baxter, Hospira (Pfizer), Tempus, Akorn, Fresenius Kabi, Astellas Pharma, Horizon Therapeutics and Lundbeck (formerly Ovation Pharma).
- While the traditional pharma companies are located in the North Suburban submarkets due to lack of lab space in the Chicago CBD, developers are now racing to add lab space inventory in burgeoning CBD submarkets such as Fulton Market, Lincoln Park Lincoln Yards and the South Loop.
- Illinois institutions and companies received over \$1.1 billion in NIH funding in fiscal year 2020, led by Northwestern University (\$422M), University of Chicago (\$238M) and the University of Illinois (\$222M).

Life Science VC Funding

Chicago | 1995 - 2020



Life Science Submarkets

- Northern Suburbs
- Fulton Market
- Lincoln Park
- South Loop

Top Universities

- Northwestern
- University of Chicago
- University of Illinois
- Illinois Institute of Technology
- Loyola
- DePaul

Top Institutions

- Prysm Institute
- University Technology Park at IIT
- Polsky Center for Entrepreneurship Innovation

Market Analysis

Total Market Size (SF)	1.3M
Current Taking Rent Range (NNN)	\$40 - \$60
Rental Change from 5 Years Ago	91%
Average Office Rents	\$30.02
Vacancy Rate	8.0%

Largest Tenants

Tempus

Evozyne

Expanding Tenants

Xeris Pharmaceuticals, Inc.

Portal Innovations, LLC

Tenants in the Market

Discovery Partners Institute (DPI)

Talis Biomedical

Top Owners

BECO Management 1,100,000 SF	Trammell Crow 730,000 SF	Sterling Bay 570,000 SF	American Landmark Partners 560,000 SF	Related 500,000 SF
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Construction Pipeline

1.2M SF

under construction

Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- Up to 12 months of free rent
- \$150 - \$275 in tenant improvements



Capital Markets

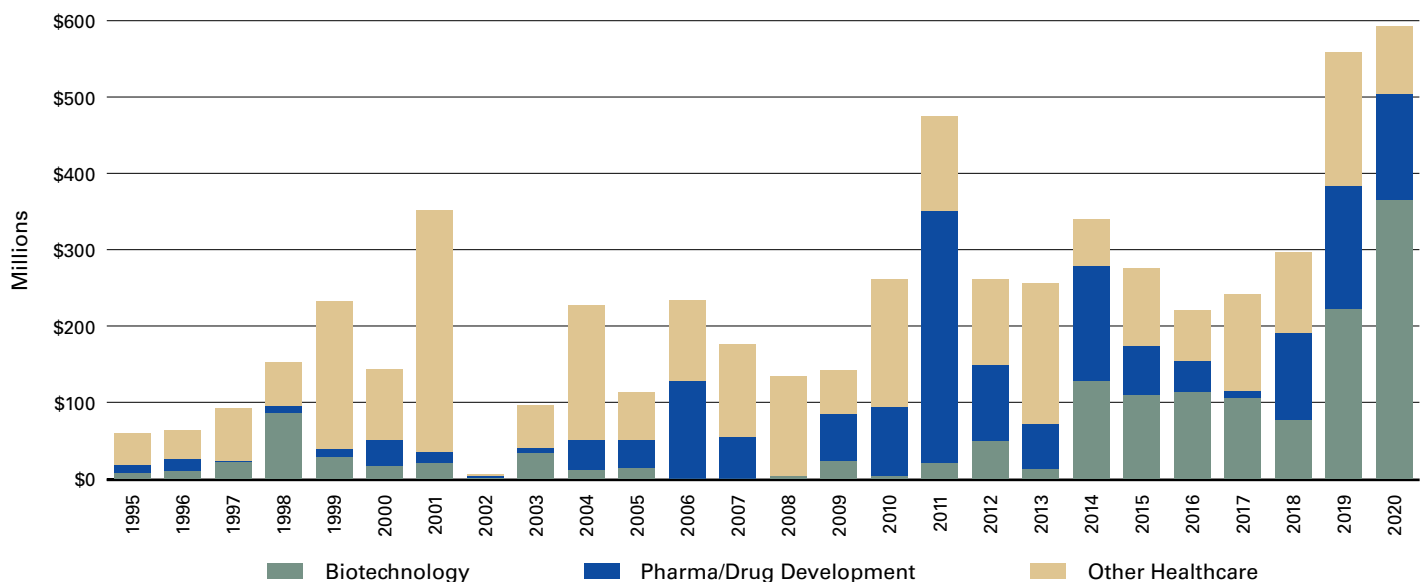
- 2020 Sales Volume: \$130,000,000
- 2020 PSF: \$150

Market Insights

- While Austin remains an emerging market in the life science sector, favorable demographic tailwinds and efforts by the city to spur innovation have created a suitable environment for life science tenants.
- Currently the largest share of the life science market is focused on medical device/diagnostics firms (33%), followed by pharmaceuticals (16%) and biologics/biotech companies (12%).
- The innovation district, which is owned by Central Health and is immediately adjacent to the University of Texas Dell Medical Center, is attracting big name life science and pharmaceutical tenants, though it is skewed largely towards traditional high-rise office use.
- Southeast Austin, on the other hand, offers less expensive land and flex space that is being utilized more for true life science/R&D uses—companies such as Thermo Fisher Scientific, XBiotech, and Bio Scientific occupy space in this submarket.

Life Science VC Funding

Texas | 1995 - 2020



Life Science Submarkets

- The Innovation District
- Southeast Austin
- Northeast Austin / Pflugerville

Top Universities

- University of Texas at Austin
- Texas State University (STAR Park)
- Texas A&M's Health Science Center

Top Institutions

- Seton Healthcare
- St. David's Healthcare
- NeuroTexas

Market Analysis

Total Market Size (SF)	1.5M
Current Taking Rent Range (NNN)	\$22 - \$25
Rental Change from 5 Years Ago	17%
Vacancy Rate	6.0% - 6.7%

Largest Tenants

Abbott Laboratories

Pharmaceutical Product Development

Allergan

Tenants in the Market

Hangar

Emblem Health

EverlyWell

Top Owners

Karlin Real Estate 1,100,000 SF	World Class Cap Group 550,000 SF	Clarion Partners 200,000 SF	ELAD Group 190,000 SF
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Sources: Newmark Research, Real Capital Analytics, PWC, NIH



Concessions

- 1 month free rent per 2 years of term
- \$150 - \$275 in tenant improvements



Capital Markets

- 2020 Sales Volume: \$20,000,000
- 2020 PSF: \$230

Local Market Contacts

Seattle

Leasing: Jesse Ottele

Capital Markets: Kevin Shannon

San Francisco

Leasing: Mary Hines,
Jennifer Vergara

Capital Markets:
Steven Golubchik

Los Angeles / Orange County

Leasing: George Thompson, Jay Nugent

Capital Markets: Kevin Shannon

San Diego

Leasing: Chris High, Steve Bruce

Capital Markets: Brunson Howard

Austin

Leasing: Josh LaFico, Jesse Weber

Capital Markets: Chris Murphy, John Alvarado

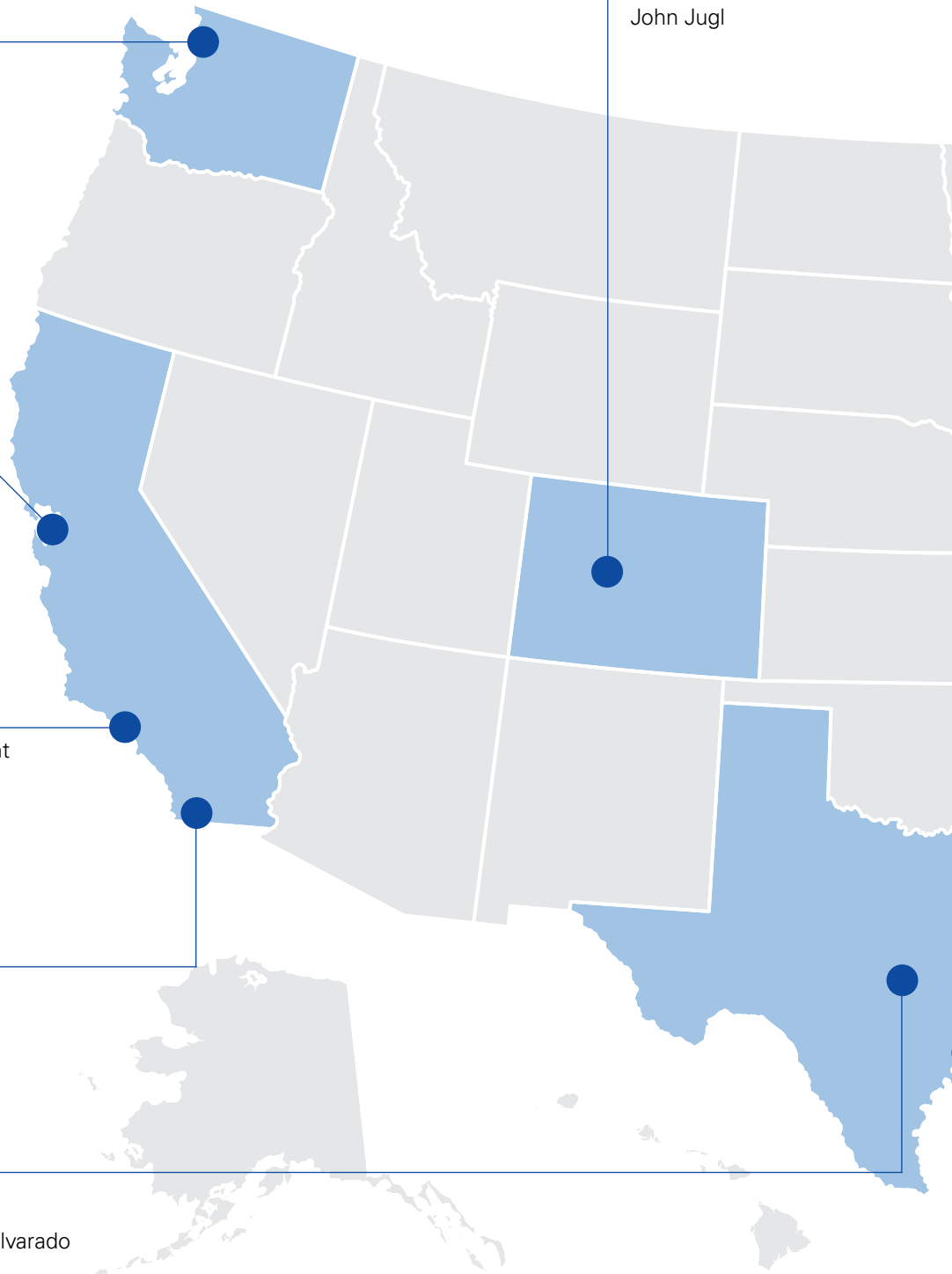
Denver / Boulder

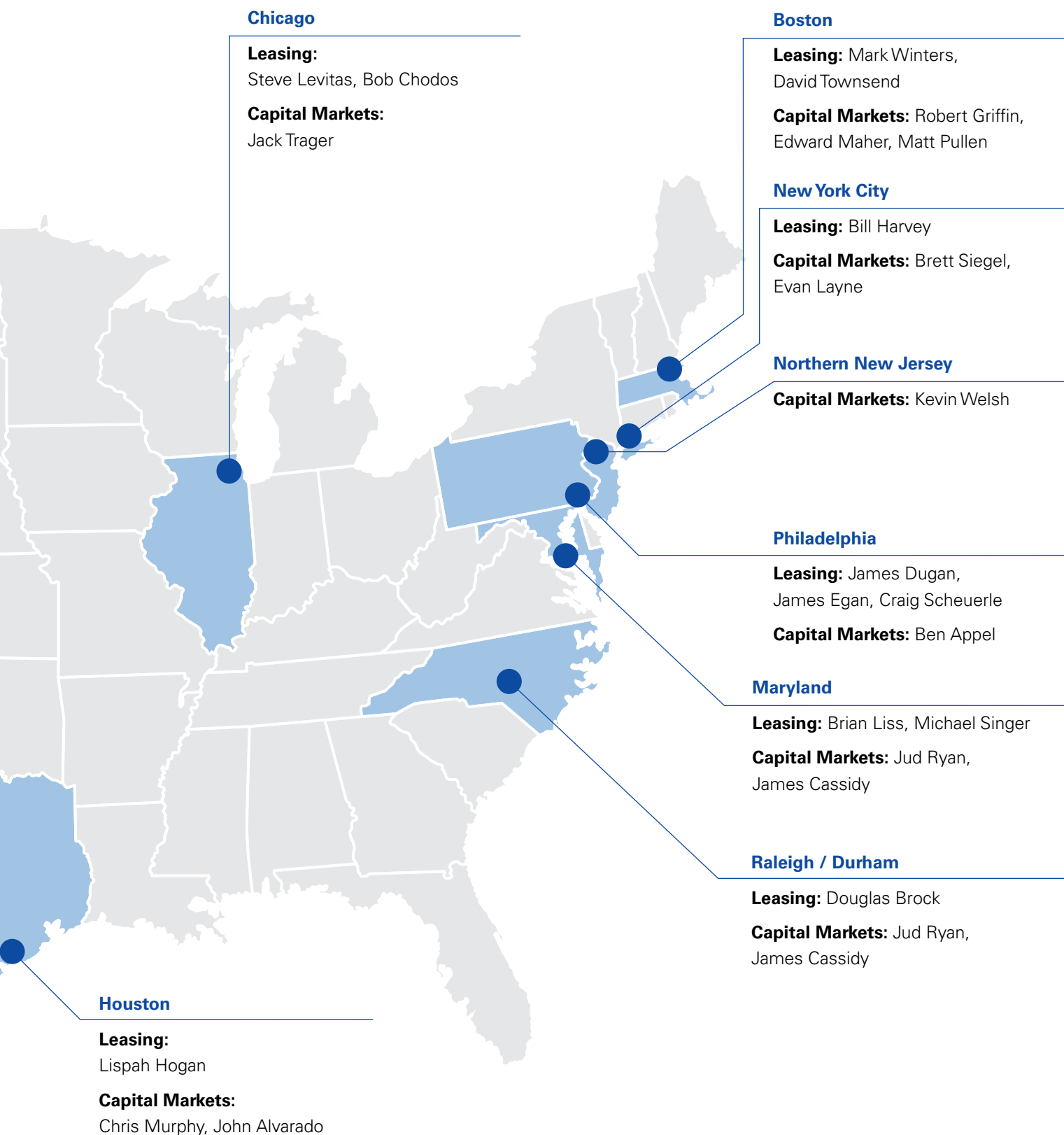
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United Arab Emirates

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