

2018 **BIOWATCH** REPORT

At its core, medicine is about saving lives. But it's also a
REAL ESTATE DRIVER

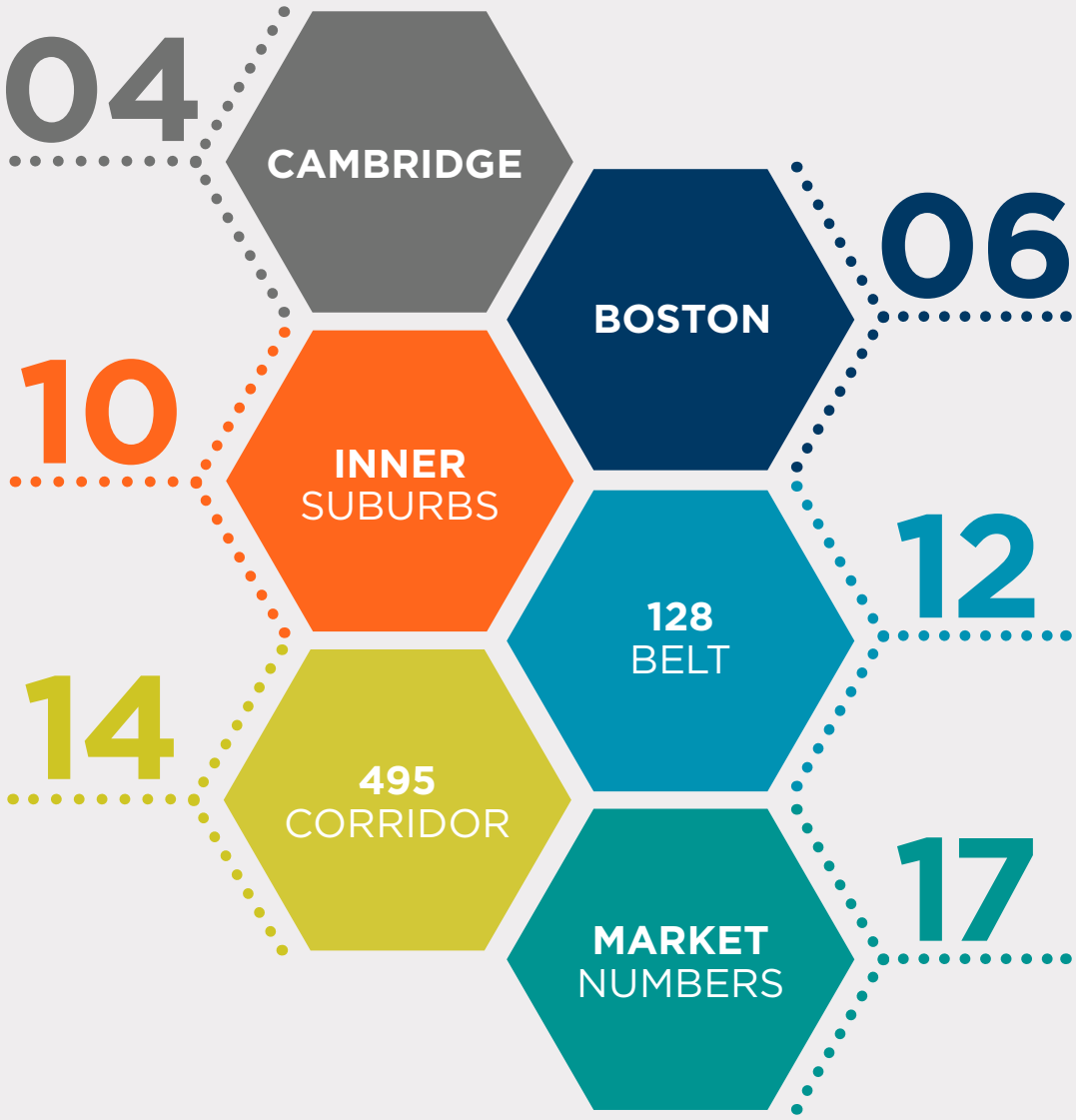
In 1977, Cambridge, Massachusetts became the world's first city to govern the handling of genetic material – through the Cambridge Recombinant DNA Technology Ordinance. At the time, DNA intelligence was in its infancy – it was only 25 years earlier that Watson and Crick discovered the double helix. However, it was well known that the discovery would be critically important to understanding diseases and to the future development of pharmaceuticals. Massachusetts – and Cambridge in particular – has been at the forefront of biotechnology since the field's inception. While Cambridge benefits from proximity to academic prowess, it was the community's early acceptance of biotechnology that enabled the industry to flourish.

From a real estate perspective, the needs of the biotech community are drastically different from most other sectors. Unlike an office tenant, who

tends to consider relocation only when a lease expires, a life science company's decisions are based on two things: scientific discovery and funding.

Once one of these is achieved, the firm is on the fast track to relocate into bigger space. Increasingly limited lab availability means many tenants must now consider new construction. Build-to-suit doesn't typically work for these types of firms as their time frames are too short. They need space as soon as possible and existing or under-construction buildings are frequently the only sufficient options.

The ongoing growth of the industry, coupled with the subsequent surge in demand for lab space, means rents are at historical highs – and rising.



CAMBRIDGE

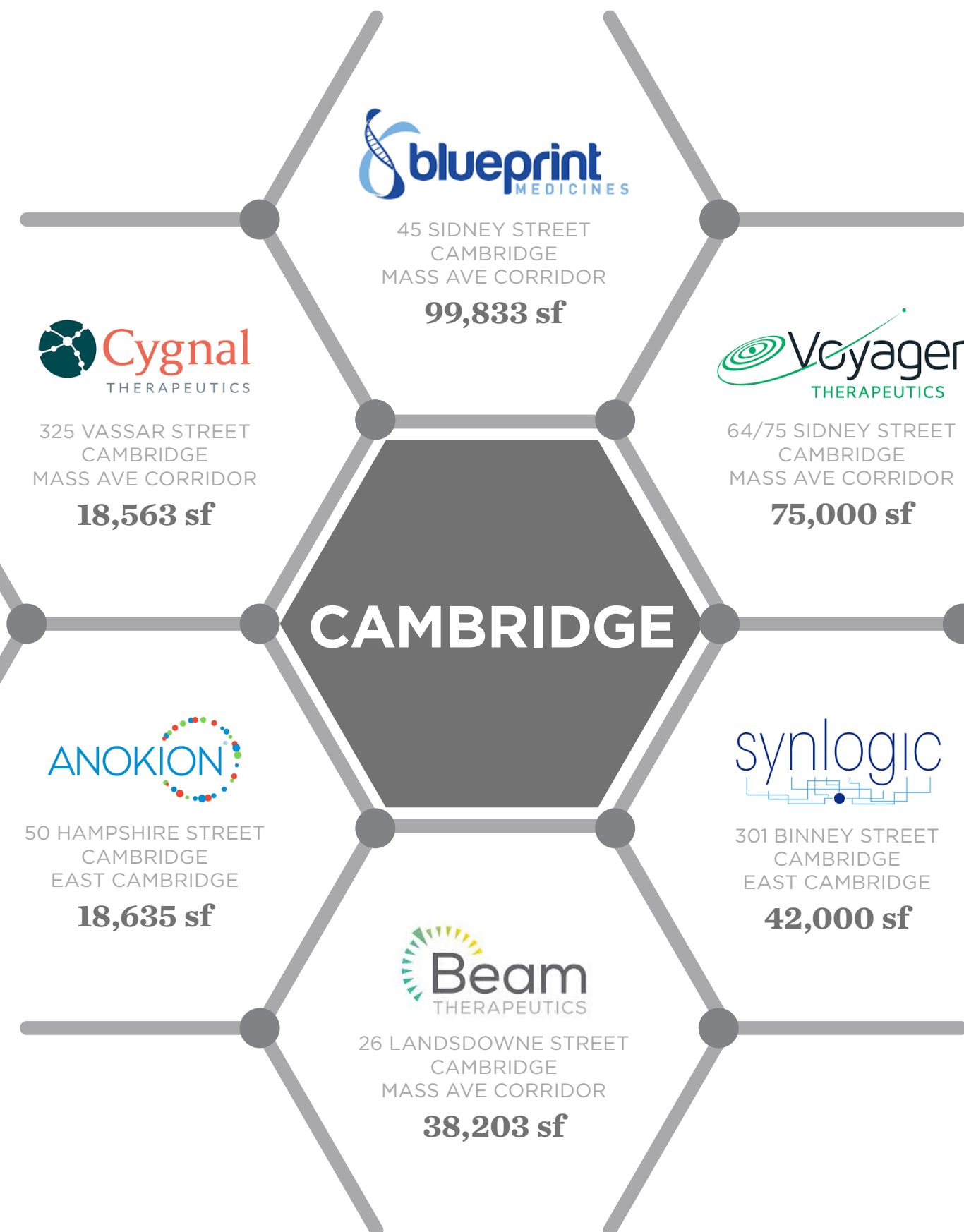
The Cambridge lab market is arguably the epicenter of the life science world.

Over the last 12 months, the seven square-mile city of Cambridge has seen over \$3.6 billion in venture capital assigned to life science firms. Year-to-date 2018 VC investments are on pace to shatter any calendar year in recorded history. There are many firms developing lifesaving drugs and devices, but a life science real estate firm is making the biggest splash the overcrowded lab market has seen in years. Mass Innovation Labs is a laboratory version of the hottest commercial real estate trend in recent memory – co-working. With lab vacancy currently hovering below 1.0%, the company provides turnkey space with flexible terms.

In 2015, the life science co-working firm originated in a sublease space offered by Vertex Pharmaceuticals at 675 West Kendall Street. After experiencing unprecedented demand, Mass Innovation Labs signed three leases across the urban core this year: 52,000 square feet (sf) at 21 Erie Street in the Massachusetts Avenue Corridor; 54,000 sf at 6 Tide Street in Boston's Seaport; and 83,700 sf at 40 Guest Street in Brighton. The company handles all the administrative

hurdles associated with occupying lab space and allows the flexibility of month- to-month leases. This business model has been a hit with office tenants in the form of WeWork, (which currently occupies nearly 1.0 million square feet (msf) in greater Boston). With the entrepreneurial life sciences market very strong, especially in Cambridge, Mass Innovation Labs is a prime home for smaller companies looking for lab space.

With vacancy at historical lows, effective rents in the city of Cambridge are now pushing north of \$92 per square foot triple net (psf NNN). Rent structure has also shifted from \$1 psf annual rent increases (or even \$1.50 increases), to 3.0% annual bumps. This may not sound like much, but it can have a significant impact on rents over the course of a 10 or 15-year term. Looking ahead to 2026, current, in-place leases will command an average of \$103 psf NNN when taxes and operating expenses are incorporated. If we focus solely on Kendall Square leases signed in 2018, this number jumps to \$112 psf.



BOSTON LMA/FENWAY

The majority of commercial space in the Longwood Medical Area (LMA) is owner occupied.

Major medical tenants include Dana-Farber Cancer Institute, Beth Israel Deaconess Medical Center, Boston Children's Hospital and Brigham and Women's Hospital. The overall market is 18.9 msf but only 1.8 msf of lab buildings are leased commercially. Given the LMA's natural barriers of Huntington Avenue, the Fenway and the Riverway, there are few viable options for expansion.

Because of its proximity to world class medical facilities, it is rare for space in LMA to become available – vacancy has been below 15.0% since the mid-1990s and under 1.0% for six years.

Funding from the National Institutes of Health (NIH) also plays a large role in Longwood. Fiscal Year 2017 was the 23rd consecutive year that Boston was the most highly funded city in the country. Forty-five institutions received nearly \$2.0B in funding – the bulk of which landed in Longwood. Not surprisingly, the tenants receiving the largest grants include the aforementioned medical tenants – Brigham and Women's Hospital (\$390M), Harvard Medical School (\$213M), Boston Children's Hospital (\$157M) and Dana-Farber Cancer Institute (\$144M).



BOSTON SEAPORT

The Seaport is Boston's hottest neighborhood. What started as the 'Innovation District' has, in recent years, evolved not only into a life science outpost of Kendall Square, but into a national life science hub.

Occupying over 1.0 msf, Vertex Pharmaceuticals has been the Seaport's most prominent life science tenant since it relocated from Cambridge in early 2014. However, 2017 brought a new wave of life science leasing activity when New Haven, CT-based Alexion Pharmaceuticals committed to 150,000 sf at Skanska's 121 Seaport Boulevard. Alexion focuses on rare blood disease treatment and plans to employ 400 people at its new headquarters.

Nearly a decade of ongoing demand, prohibitively high rents and limited availability of lab space

means shared space models are not just for office tenants anymore. Mass Innovation Labs, a turnkey lab space provider, signed three leases in the fourth quarter of 2017 including an 11-year, 54,000 square-foot deal at 6 Tide Street (also known as Innovation Square), Related Beal's 360,000 square-foot life science building scheduled to deliver in 2019. Just across the street from 6 Tide Street is another Related Beal property, 27 Drydock Avenue, which has become home to some of Boston's most dynamic lab users including Emulate and Orig3n.



INNER SUBURBS

Until recently, much of the commercial property in the inner suburbs was older industrial product.

However, demand for lab space with urban proximity has exploded in the past few years as Cambridge has become increasingly exclusive. These prohibitive conditions have created an ongoing exodus of tenants in search of availability and affordability. Many of them (especially those in the life sciences) are finding new homes in the inner suburbs - an approximately 1.8 msf lab market predominantly clustered in Alewife/Watertown/Brighton - which, in the past year, has become a viable alternative to Kendall Square.

As a testament to its urban proximity and economical rents, the inner suburbs have recently attracted companies like Mass Innovation Labs, C4 Therapeutics, Addgene and Proteostasis, all relocating from East Cambridge. This demand has led to a vacancy rate of just over 7.9%. And the ongoing demand, paired with the availability of new construction, means rental rates for inner suburban life science space have increased 15.0% to 20.0%

over the last 24 months - ranging from \$45 to \$65 psf NNN.

In fact, Arsenal and Pleasant Streets in Watertown have become a life science microcluster - providing homes for companies like Tetrphase Pharmaceuticals, Selecta Biosciences, pSivida, Exonics Therapeutics, Kala Pharmaceuticals and Aileron Therapeutics. Arsenal Street is also home to electronic health record software firm athenahealth's 760,000 square-foot campus.

On the sales front, Clarion Partners recently purchased LINX (a 185,000 square-foot lab building located at 490 Arsenal Street, Watertown) for \$928 psf. As a basis of comparison, a Financial District trophy tower recently traded hands for \$750 psf. That a lab building inaccessible via public transportation and with limited walkable amenities traded at such a premium to a downtown tower is a testament to the value of laboratory space in greater Boston.



128 BELT

Route 128's initial glory was as America's technology highway, but today it has become America's life science highway.

As Cambridge lab availability has narrowed and rents have skyrocketed, many tenants are exploring alternative submarkets and are landing along Route 128. More than a million square feet of new suburban life science deals were executed in 2017, following an additional million square feet of new leases in 2016. Thus far in 2018, nearly 400,000 sf of new requirements have found their way to Route 128. At last count, 117 life science companies occupy approximately 8.5 msf of Route 128's inventory – an unprecedented figure.

On the construction front, King Street Properties has a large scale renovation underway at the former Cubist/Merck facility on Hayden Avenue in Lexington, which has been rebranded as the “Hayden Research Campus.” The project is seeing significant tenant demand. King Street recently signed a 50,000 sf lease with Concert Pharmaceuticals. Developers who understand the market are building on spec and seeing excellent leasing results. As a result of this recent flurry of activity, asking rents are climbing – up 8.0% in the past 12 months.



495 CORRIDOR

Cambridge is the center of biotech, but the 495 corridor is a magnet for medical device and diagnostic companies.

Genzyme is perhaps the most well-known, but other tenants include Boston Scientific (Natick and Marlborough), Medtronic (Mansfield), GE Healthcare (Marlborough), EMD Millipore (Burlington) and Insulet Corporation (Bedford). Collectively, medical device firms occupy over 2.0 msf along the 495 Corridor.

Asking rents for research and development space in this market run from \$9 psf NNN to \$20 psf NNN. This may be a wide range, but it is still more than 80% lower than in Cambridge. As a community that frequently needs access to manufacturing space, the 495 corridor also provides proximity to many economical options.

One of the largest leases of the last 12 months was the Astellas Institute for Regenerative Medicine's move from Marlborough to Westborough Technology Park. The facility will serve as the company's global hub for ophthalmological regenerative research. Astellas will invest \$80M to convert 9 Technology Drive into a research and development facility - a trend that is picking up along the 495 corridor.

33 New York Avenue in Framingham is currently under renovation for conversion to a laboratory building. Construction is scheduled to be completed by the end of the year.





LAB SPACE
AVAILABLE



AVERAGE
EFFECTIVE
RENT (NNN)

NIH

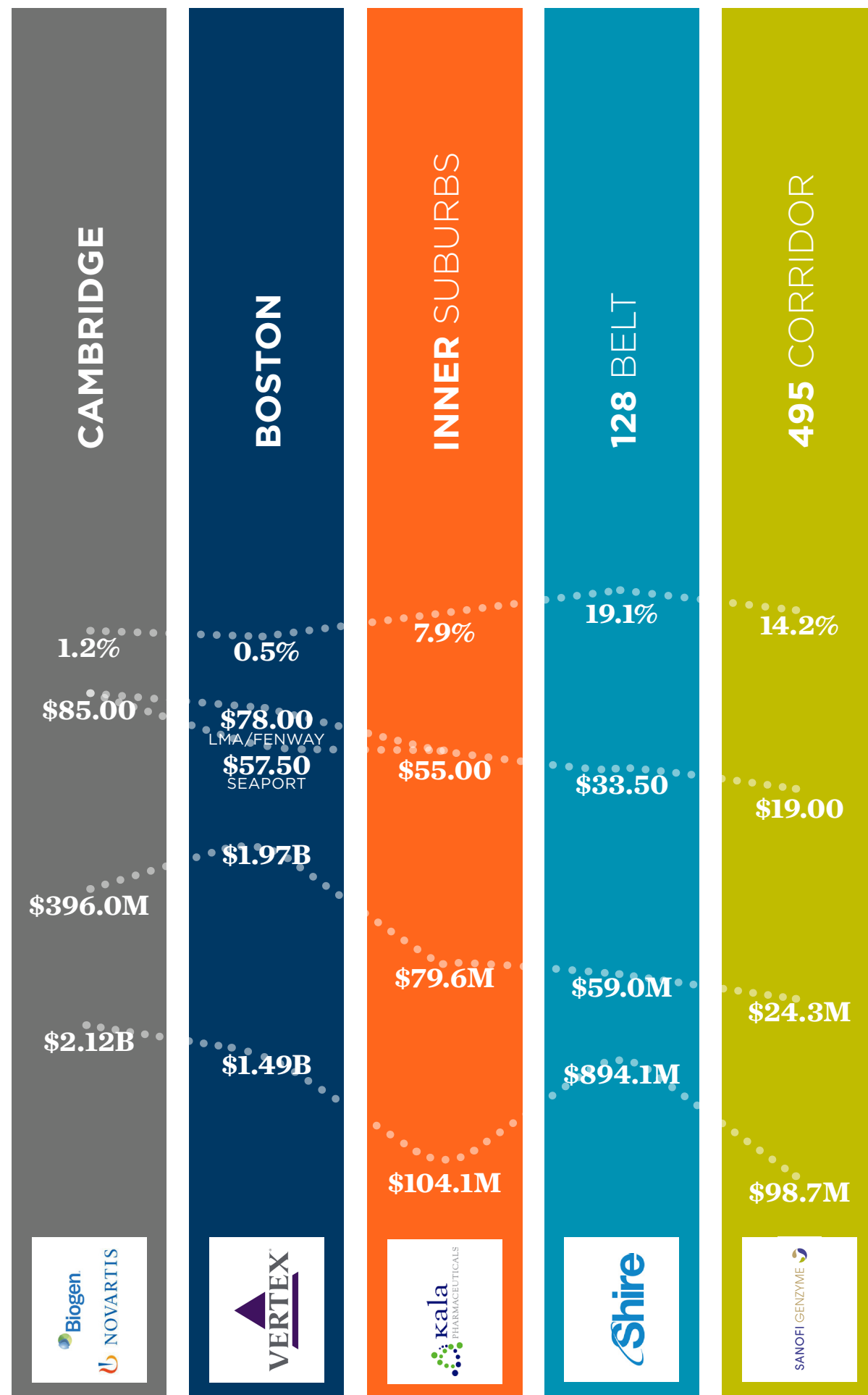
FUNDING
(FY 2017)

VC

FUNDING
(FY 2017)



LARGEST
TENANT



MARKET NUMBERS

MASSACHUSETTS BIOPHARMA BY THE NUMBERS



66,053

employees in
Massachusetts

30%

growth in employment
in the last 10 years

9.2B

wages paid to
Massachusetts-based
employees in 2017



9.8MSF

of growth in lab inventory
in the last 10 years

2.5MSF

of demand
for lab space



380

medical conditions
Massachusetts-based companies
are currently researching

1.9B

patients worldwide who have
been treated by therapies
developed in Massachusetts

LARGEST COMPANIES IN MASSACHUSETTS BY SQUARE FOOT

SANOFI GENZYME 

2,260,000 sf

 **Biogen**

1,750,000 sf


VERTEX

1,440,000 sf

 **Shire**

1,470,000 sf




1,120,000 sf

 **NOVARTIS**

1,120,000 sf

BOSTON

LIFE SCIENCE IPOs 2017-2018

 **Rubius**Therapeutics
CAMBRIDGE | **241.10M**

 **HOMOLOGY**
Medicines, Inc.
BEDFORD | **144.00M**

 **rhythm**
BOSTON | **137.83M**

 **deciphera**
WALTHAM | **127.50M**

 **SOLID**
BIOSCIENCES
CAMBRIDGE | **125.00M**

 **Translate**BIO
LEXINGTON | **121.55M**

 **SURFACE**
ONCOLOGY
CAMBRIDGE | **108.00M**

 **NEON**
THERAPEUTICS
CAMBRIDGE | **100.00M**

 **magenta**
THERAPEUTICS
CAMBRIDGE | **100.00M**

 **AVROBIO**
CAMBRIDGE | **99.71M**

scPharmaceuticals
BURLINGTON | **89.60M**

 **EVELO**
CAMBRIDGE | **85.00M**

 **restORbio**
BOSTON | **85.00M**

 **SCHOLAR ROCK**
CAMBRIDGE | **75.04M**

 **SPERO**
THERAPEUTICS
CAMBRIDGE | **75.00M**

 **Allena**
PHARMACEUTICALS
NEWTON | **74.67M**

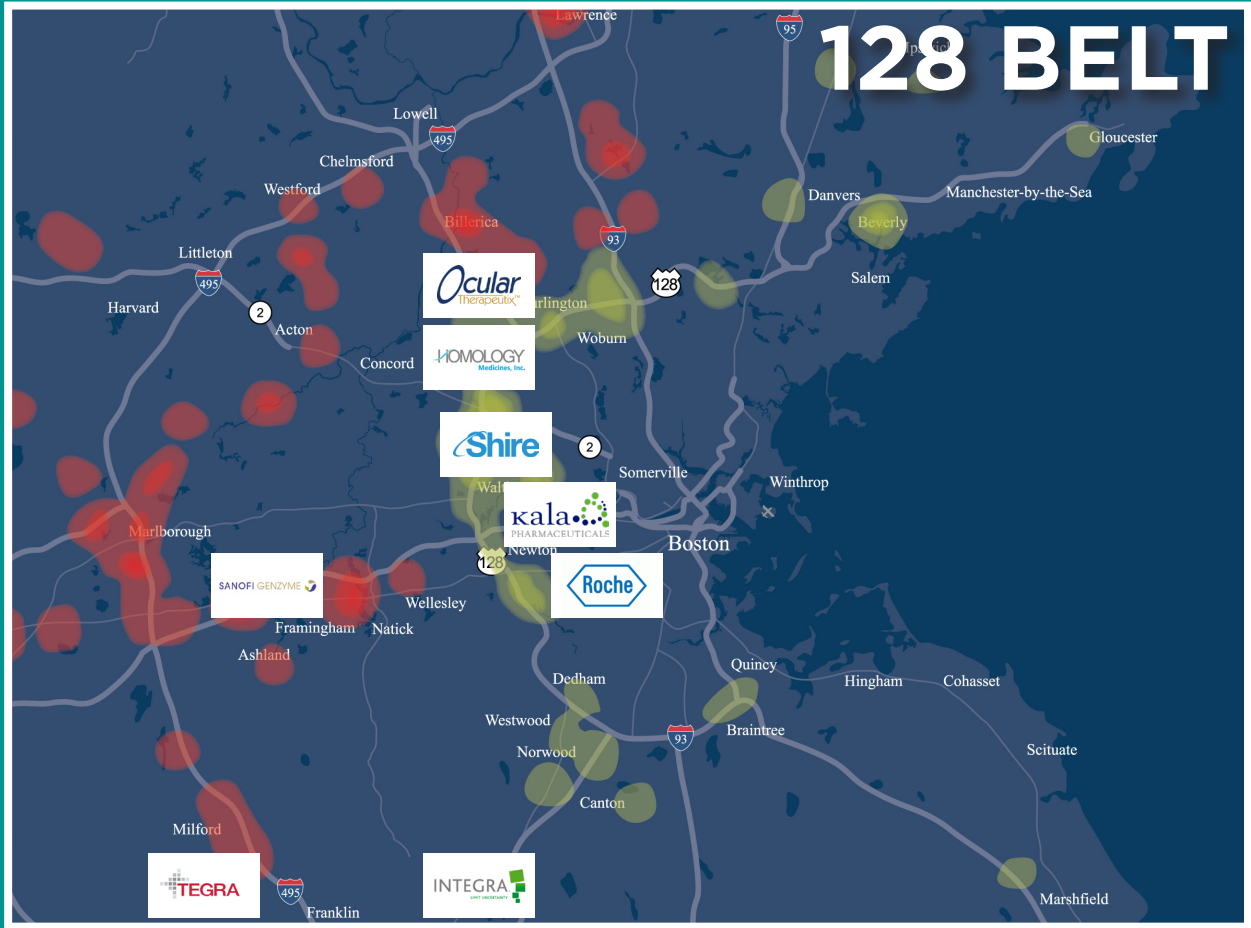
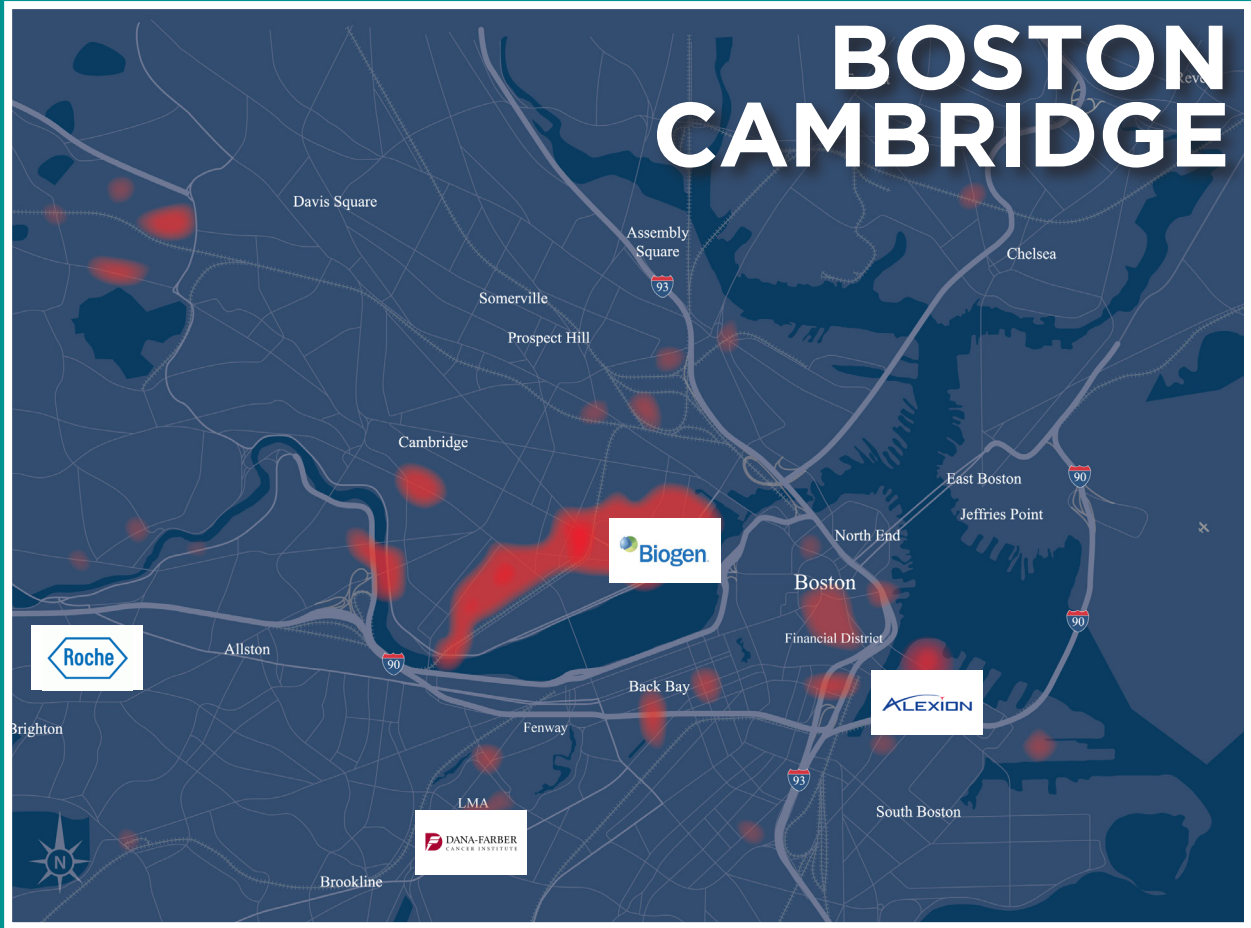
 **UNUM**
THERAPEUTICS
CAMBRIDGE | **69.24M**

 **CUE**
BIOPHARMA
CAMBRIDGE | **66.16M**

Quanterix
LEXINGTON | **64.13M**

 **Constellation**
PHARMACEUTICALS
CAMBRIDGE | **60.00M**

 **arsanis**
WALTHAM | **20.00M**



THE BLOX

The Cushman & Wakefield **BLOX** (Building Lease Opportunity Index) was developed to provide tenants with an accurate gauge of space availability in Cambridge. For most tenants in the market (TIMs), the amount of available space exceeds the tenant's requirement. Deductive reasoning leads us to believe that a tenant therefore has multiple options. In a typical market this would be true, but Cambridge is anything but typical.

And...if a tenant finds space in the requirement range, it's not the only firm competing for it.

The **BLOX** brings these two metrics together into one synthesized ranking - showing which size ranges are the most competitive.

Lab	NEW	DIRECT	SUBLET	TOTAL
<2,500 SF		1		1
2,500-5,000 SF		4	1	5
5,000 - 10,000 SF	3	2	4	9
10,000 - 15,000 SF			3	3
15,000 - 25,000 SF	1			1
25,000 - 40,000 SF		1	1	2
40,000 - 60,000 SF	1			1
>100,000 SF	1			1
TOTAL	6	8	9	23

Office	NEW	DIRECT	SUBLET	TOTAL
<2,500 SF		7	2	9
2,500-5,000 SF	1	9	4	14
5,000 - 10,000 SF		4	7	11
10,000 - 15,000 SF		4	4	8
15,000 - 25,000 SF		1	4	5
25,000 - 40,000 SF		3	1	4
60,000 - 100,000 SF		1	1	2
>100,000 SF	1	1	1	3
TOTAL	2	30	24	56

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