

# Big4Bio

B O S T O N

YEAR IN REVIEW

2019



# Welcome

to the first edition of Big4Bio's Year-in-Review. These annual reports (one for each region we cover), give us the opportunity to look back at the year past and think about what 2020 may bring. In future reports we look forward to expanding the metrics we track as well as following the progress of our key measurements over time.

After a very strong year for life sciences venture investment in 2018, investment levels decreased in 2019 in both the Boston market as well as across the U.S. But Boston did see the number of early stage rounds increase.

Boston's well-established infrastructure of legacy companies, experienced entrepreneurs and seasoned investors along with its strong pipeline of early stage research and qualified life sciences graduates, ensures that it will maintain its prominence as one of the premier life sciences clusters in the world.

We thank our financial data partner DealForma and JLL who shared their 2019 Life Sciences Industry Outlook with us. We also thank MassBio for sharing their 2020 Outlook with us. We look forward to continuing to share the important innovations developed by Boston life sciences companies with our readers in 2020.



Tilton Little | Executive Director/Publisher  
Big4Bio

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# Life Sciences Industry Market Facts

## Overview

- The Boston market leads the Big4Bio markets in terms of both the number of life sciences companies and total life sciences employees at 2,270 and 95,000 respectively. The San Francisco Bay Area ranks second with 1,710 companies and nearly 80,000 employees.
- However, Boston ranks third in terms of average salary behind both Philadelphia, at \$128,000, and San Francisco, at \$127,000.
- With \$2.4B in NIH funding, Boston has a healthy lead over the other Big4Bio markets. Philadelphia and San Francisco tie for second place at \$1B each.



**2,273**  
Companies



**95,209**  
Employees



**\$123,600**  
Average Salary



**5,583**  
Life Sciences Graduates



**5%**  
Year-Over-Year Employment Growth



**3.5%**  
Year-Over-Year Enterprise Growth



**\$2.4B**  
NIH Funding



**38.6 msf**  
Real Estate Inventory



**6%**  
Lab Vacancy Rate



**\$63 psf**  
Rent Per Square Foot

## Top Recipients

**\$466M**  
Massachusetts General Hospital

**\$389M**  
Brigham and Women's Hospital

**\$208M**  
Harvard Medical School

(Source: JLL Life Sciences Outlook, BioSpace for salary, MassBio for top NIH recipients)

# Top Stories

A CEO behaving badly, a CEO support system and a surprise comeback were among the stories that attracted the most click-throughs from our readers in 2019.

## 1. Boston jury finds biotech CEO guilty of fleecing investors, obstruction of justice

The biotech CEO who promised to end “thousands of years of morphine and opiate addiction” and allegedly told investors they could realize huge gains by investing in his company — which he said was worth \$1B before it rapidly ran out of cash — has been convicted of fraud by a Boston jury. [Full Article >](#)

## 2. Biogen resurrects aducanumab, arguing expanded data set supports FDA filing in Alzheimer's

Biogen is planning to file for FDA approval of its failed Alzheimer's disease drug aducanumab. The drug flunked a futility analysis in March, but Biogen resurrected it after factoring in data generated after the cutoff for the interim assessment. [Full Article >](#)

## 3. This invite-only club is grooming new biotech CEOs — and helping make them less lonely, too

Steve Voit runs an exclusive, confidential, invite-only club for biotech CEOs — but it's not filled with the Arturo Fuente cigars and \$30 martinis you might expect. [Full Article >](#)

## 4. Neon Therapeutics Announces New Strategic Focus on Novel T Cell Programs

Neon Therapeutics, Inc. (Nasdaq: NTGN) today announced its new strategic focus on the development of its novel neoantigen-based T cell programs, in conjunction with a corporate restructuring. Neon will focus its efforts on the advancement of both personal and precision neoantigen-targeted T cell therapy candidates. [Full Article >](#)

## 5. CRISPR's “magnificent moment” in the clinic

A company announcement of the first readout from a CRISPR–Cas9 therapy clinical trial suggests potentially curative responses in two patients with transfusion-dependent  $\beta$ -thalassemia and sickle cell disease, respectively. [Full Article >](#)

# Financings

## Boston Area Venture Rounds (Biopharma, Medtech, Diagnostics)

Value

2018  \$4.5B  
2019  \$3.0M

Number

2018  73  
2019  65

## All US Venture Rounds (Biopharma, Medtech, Diagnostic)

Value

2018  \$14.2B  
2019  \$11.9B

Number

2018  286  
2019  259

## Boston Area Seed and Series A Rounds (Biopharma, Medtech, Diagnostic)

Value

2018  \$1.6B  
2019  \$1.5B

Number

2018  36  
2019  39

(Source: DealForma)

Venture investment in Boston life sciences companies dipped significantly in 2019 totaling \$3B compared to \$4.5B in 2018. But the number of deals decreased modestly in comparison in 2019 to 65 compared to 73 in the prior year. The smaller decrease in the number of deals can in part be ascribed to the fact that in 2019 there were no rounds larger than \$200M while in 2018 there were four mega-rounds, including one for \$500M.

For Seed and Series A rounds, the number of deals actually increased – in a year when all venture metrics seem to have dropped across the board – to 39 in 2019 compared to 36 in 2018. However, the total amount raised dipped, if only a bit, from 2018 coming in at \$1.54B compared to \$1.6B in 2018.

## Top Deals

- Cycleron Therapeutics, a small molecule company with a primary therapeutic focus on hematology, raised \$175M in a private placement in February.
  - Beam Therapeutics, a CRISPER-focused company, raised \$135M in a Series B round in March.
  - Thrive Earlier Detection Corp. raised \$100M in a Series A round in May. The company is developing a liquid biopsy test to detect multiple cancers at an early stage.
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## M&A

On the M&A side, there were 22 deals announced. Five of those were cancer-focused companies, four were ophthalmic and three were neurologic.

Of the deals were a value of announced, Merck's acquisition of the late stage cancer company ArQule in December was the largest deal in the region valued at \$2.7B with no contingency.

Belgium-based biopharmaceutical multinational UCB acquired Ra Pharmaceuticals for \$2.1B. Ra is a clinical-stage company that is developing therapies for rare neurologic, hematologic and renal diseases.

Rounding out the three largest deals of the year, Thermo Fisher Scientific bought out gene therapy company Brammer Bio for \$1.7B with no contingencies.

# 2020 Outlook

We asked our friends at MassBio to share their thoughts on the legislative and political landscape in 2020. Here's their take on what to expect:

As we begin 2020, the drug pricing debate at the federal and state levels will continue to slow investment in the industry. Government price controls in Massachusetts and federally will spook investors who rely on healthy returns for their risky investments, and 2020 presidential candidates will arm their campaigns with promises to lower drug costs. Although this will undoubtedly impact future drug approvals if the most radical drug pricing proposals become law, we're unlikely to feel their full effect in 2020. Approvals for rare diseases will continue to rise, as will one-time cures in the form of cell and gene therapies.

The startup community will feel the impact of decreased investment the most, but this will lead to further collaboration and M&A activity among big pharma and biotech. According to the Chimera Research Group, there were 28 biotech mergers & acquisitions announcements in 2019, a number I expect to increase in 2020. Big pharma will continue to rely on the innovation inside small biotech companies to fill their pipeline and will continue to look to the Massachusetts ecosystem to meet their needs. Due to a decline in venture capital investment, small biotech will have to engage in more M&A activity with big pharma to commercialize their products.

I urge local and federal politicians to act cautiously when considering radical reform to drug pricing, as patients will ultimately pay the price for stifled innovation. Although we may not feel the effects this year, future innovation will suffer if the most harmful legislation is passed. Instead of demonizing an industry that's creating new tomorrows for patients around the world, we must look holistically at solutions to lower patients' out-of-pocket costs, increase transparency among all healthcare stakeholders, and support innovative ways to finance breakthrough treatments. 2020 will not be without its challenges, and it's up to all of us to advocate for a brighter future for drug discovery and development, and ultimately patient lives.

**Bob Coughlin**, President & CEO  
MassBio

# Summary

In a year that was tough on early stage investments, Boston actually saw the number of Seed and Series A rounds increase from 2018 – although the value of those deals dropped by \$100,000 from the prior year.

Twenty-twenty promises to bring new challenges to the sector. Presidential election years always make markets queasy, and the fact that the only thing both parties seem to agree on is reining in prescription drug prices doesn't help.

While the coming year will likely bring lower levels on investment, Boston is well-positioned to weather the storm with \$5B in total investment, venture plus NIH funding, in 2019. The region also benefits from its proximity to Big Pharma companies, which will continue to turn to biopharma companies to fill their pipelines with innovative therapies.

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