



# Massachusetts

The U.S. Bioscience Industry: Fostering Innovation  
and Driving America's Economy Forward

Massachusetts is among the national leaders in the bioscience industry. Its large, highly specialized, and diverse industry base continues to grow at a rapid rate. State bioscience firms have grown their employment base by 21 percent since 2018, nearly twice the national growth rate for the industry. In 2021, the industry employed nearly 132,000 across 4,612 business establishments. The bioscience industry's concentration in Massachusetts is two and a half times greater than the national average (location quotient is 2.50). The state has a specialized employment concentration in two of the five industry subsectors—research, testing, and medical labs; and medical devices and equipment. In addition, Massachusetts has high, above-average concentrations in bioscience-related distribution and in pharmaceuticals. Massachusetts is among the top tier of states in every key measure of its innovation ecosystem. State institutions are seeing steady growth in NIH funding awards. Bioscience-related venture capital investments in Massachusetts companies increased significantly in 2021 to nearly \$17.5 billion.

## Bioscience Performance Metrics

### Summary of State Performance in Selected Bioscience-related Metrics

Metric	Massachusetts	United States	Quintile
<b>Bioscience Industry, 2021</b>			
Bioscience Industry Employment	131,800	2,135,704	I
Bioscience Industry Location Quotient	2.50	n/a	I
Bioscience Industry Establishments	4,612	127,389	I
<b>Academic Bioscience R&amp;D Expenditures, FY 2020</b>			
Bioscience R&D (\$ thousands)	\$2,000,822	\$51,108,737	I
Bioscience Share of Total R&D	50%	63%	V
Bioscience R&D Per Capita	\$285	\$154	I
<b>NIH Funding, FY 2021</b>			
Funding (\$ thousands)	\$3,198,826	\$34,751,109	I
Funding Per Capita	\$458	\$105	I
<b>Bioscience Venture Capital Investments, 2018-21 (\$ millions)</b>	\$41,412.70	\$197,674.54	I
<b>Bioscience-Related Patents, 2018-21</b>	14,154	153,072	I

State ranking figures for bioscience performance metrics are calculated as quintiles, where I = top quintile, III = middle quintile, and V = bottom quintile. For source notes, see end of State Profile.

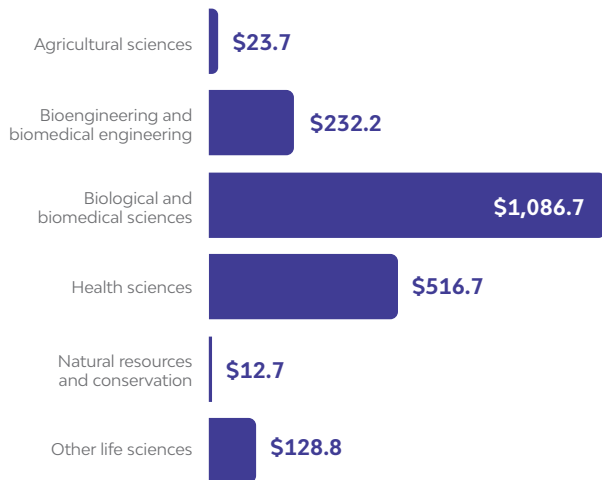
Industry Subsector		Massachusetts		United States	
		2021	2018–2021 Change	2021	2018–2021 Change
Agricultural Feedstock and Industrial Biosciences	Establishments	11	0.0%	1,948	10.0%
	Employment	141	-15.4%	69,573	1.9%
	<i>Location Quotient</i>	0.08		n/a	
	Average Annual Wage	\$71,038	3.1%	\$91,989	13.1%
Bioscience- Related Distribution	Establishments	1,472	23.8%	62,697	14.7%
	Employment	17,502	22.6%	602,589	6.6%
	<i>Location Quotient</i>	1.18		n/a	
	Average Annual Wage	\$174,680	25.4%	\$121,606	15.0%
Medical Devices and Equipment	Establishments	321	7.7%	10,268	17.4%
	Employment	23,407	4.4%	398,847	5.5%
	<i>Location Quotient</i>	2.38		n/a	
	Average Annual Wage	\$130,240	9.9%	\$98,481	8.7%
Pharmaceuticals	Establishments	107	11.2%	5,973	34.7%
	Employment	9,282	-8.5%	344,839	11.9%
	<i>Location Quotient</i>	1.09		n/a	
	Average Annual Wage	\$174,179	24.1%	\$126,153	10.3%
Research, Testing, and Medical Laboratories	Establishments	2,701	38.6%	46,503	34.5%
	Employment	81,468	32.3%	719,856	19.3%
	<i>Location Quotient</i>	4.59		n/a	
	Average Annual Wage	\$233,270	30.0%	\$147,396	22.0%
Total Bioscience Industry	Establishments	4,612	30.1%	127,389	22.3%
	Employment	131,800	21.4%	2,135,704	11.0%
	<i>Location Quotient</i>	2.50		n/a	
	Average Annual Wage	\$202,857	28.6%	\$125,750	16.4%
Total Private Sector	Establishments	269,133	7.7%	10,665,643	9.3%
	Employment	3,040,627	-3.7%	123,376,557	-1.5%
	<i>Location Quotient</i>	1.00		n/a	
	Average Annual Wage	\$89,401	21.7%	\$67,826	18.9%

Note: U.S. employment metrics include Puerto Rico.

## Bioscience Research in Massachusetts

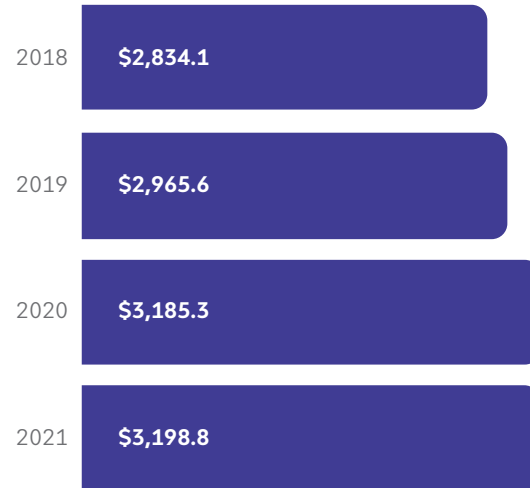
### Bioscience Academic R&D Expenditures

\$ Millions, FY 2020



### NIH Awards

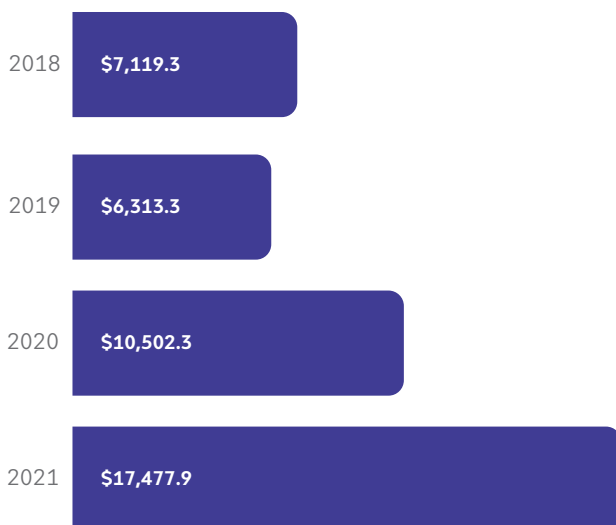
\$ Millions, FY 2018-2021



## Bioscience Venture Capital in Massachusetts

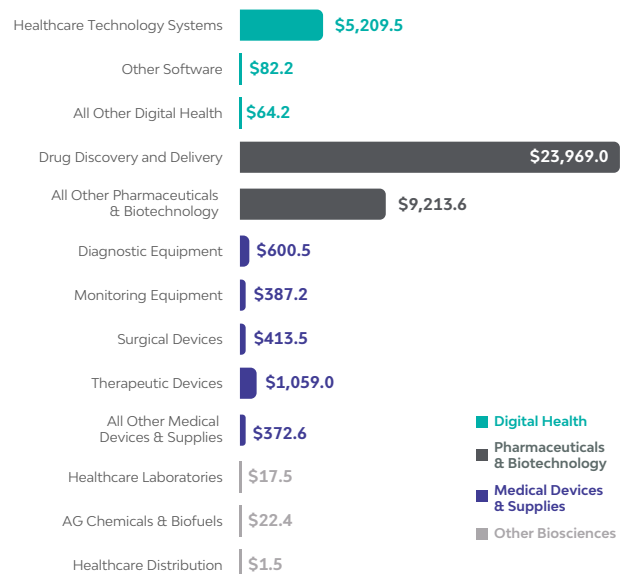
### Bioscience-Related Venture Capital Investments

\$ Millions, 2018-2021



### Bioscience-Related Venture Capital Investments by Segment

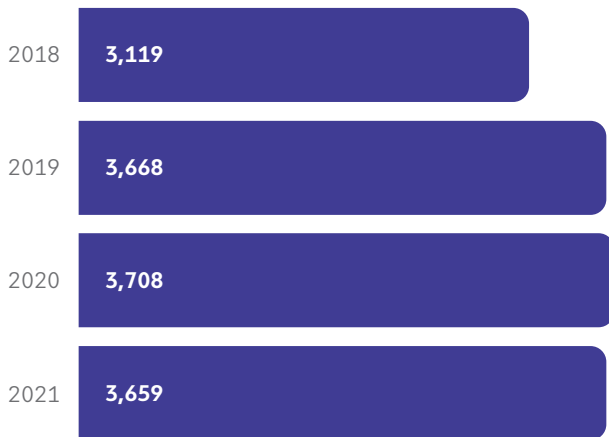
\$ Millions, 2018-2021



## Bioscience Patents in Massachusetts

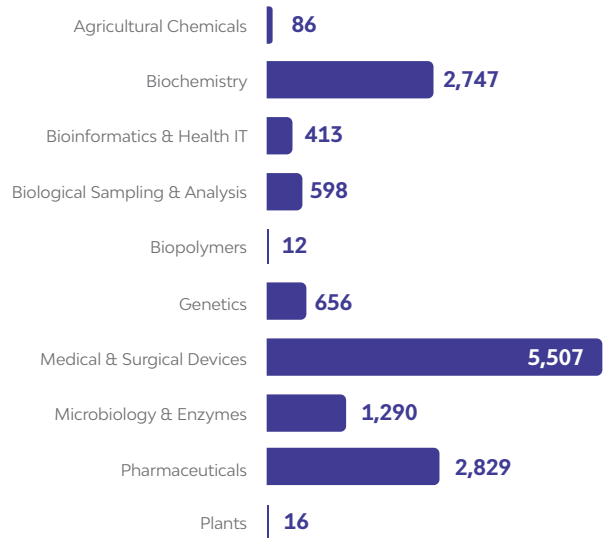
### Bioscience-Related U.S. Patents

2018-2021



### Bioscience-Related U.S. Patents by Segment

2018-2021



## Source Notes

**Employment, Establishments and Wages:** U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW), enhanced by Lightcast (Datarun 2022.3).

**Academic R&D Expenditures:** National Science Foundation (NSF), Higher Education Research and Development (HERD) Survey.

**NIH Funding:** National Institutes of Health, NIH Awards by Location & Organization (summary information within RePORT database).

**Venture Capital:** PitchBook Data, Inc.

**Patents:** U.S. Patent & Trademark Office data from Clarivate Analytics’ Derwent Innovation patent analysis database.

*For a more detailed discussion of the data and methodology used, please see the Appendix to the full national report.*