

Massachusetts



Massachusetts is home to a large, highly specialized, and growing bioscience industry. The state is a national leader in the biosciences in industry size, concentration, and in the performance of its innovation ecosystem. Massachusetts’ bioscience industry employed nearly 78,000 in 2012 across 2,090 business establishments. The state has an 89 percent greater concentration in bioscience jobs compared to the national average (location quotient is 1.89) and is considered to have a specialized employment concentration in three of the five major industry subsectors—research, testing, and medical labs; medical devices; and drugs and pharmaceuticals. Massachusetts’ 3.5 percent job growth in the biosciences since 2007 was driven primarily by strong gains in research, testing, and medical labs. The state is among the top tier of states in the size and concentration of its bioscience and biomedical research complex with academic and other research institutions receiving nearly \$2.4 billion in NIH funding in 2013. Massachusetts bioscience companies have received nearly \$8.5 billion in venture capital investments since 2009 and its inventors have been issued more than 10,000 bioscience patents over this same period.

Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Massachusetts	United States	Quintile
Bioscience Industry, 2012			
Bioscience Industry Employment	77,817	1,619,746	I
Bioscience Industry Location Quotient	1.89	n/a	I
Bioscience Industry Establishments	2,090	73,088	I
Academic Bioscience R&D Expenditures, FY 2012			
Bioscience R&D (\$ thousands)	\$1,430,752	\$38,139,876	I
Bioscience Share of Total R&D	47%	61%	IV
Bioscience R&D Per Capita	\$214	\$119	I
NIH Funding, FY 2013			
Funding (\$ thousands)	\$2,384,194	\$22,293,255	I
Funding Per Capita	\$356	\$70	I
Bioscience Venture Capital Investments, 2009–13 (\$ millions)	\$8,482.0	\$49,401.7	I
Bioscience and Related Patents, 2009–13	10,198	100,238	I

State ranking figures for bioscience performance metrics are calculated as quintiles, where I = top quintile, III = middle quintile, and V = bottom quintile.

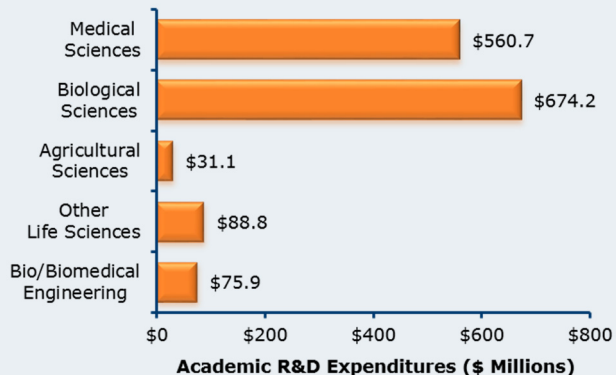
For source notes, see end of State Profile.

Industry Subsector	Massachusetts		United States	
	2012	2007-2012 Change	2012	2007-2012 Change
Agricultural Feedstock & Chemicals				
Establishments	13	-15.0%	1,772	5.2%
Employment	213	-26.5%	76,404	-1.0%
Location Quotient	0.11		n/a	
Direct-Effect Employment Multiplier	13.0		18.1	
Total Employment Impact	2,773		1,382,637	
Average Annual Wage	\$58,435	-16.0%	\$75,828	14.2%
Bioscience-Related Distribution				
Establishments	479	6.8%	36,793	1.4%
Employment	8,364	-20.3%	442,016	-3.9%
Location Quotient	0.90		n/a	
Direct-Effect Employment Multiplier	2.7		2.7	
Total Employment Impact	22,971		1,199,015	
Average Annual Wage	\$103,427	11.5%	\$85,188	11.5%
Drugs and Pharmaceuticals				
Establishments	74	-21.3%	3,057	12.0%
Employment	8,960	-1.9%	284,331	-10.9%
Location Quotient	1.24		n/a	
Direct-Effect Employment Multiplier	9.9		9.9	
Total Employment Impact	88,790		2,673,265	
Average Annual Wage	\$116,574	-9.0%	\$106,576	13.9%
Medical Devices and Equipment				
Establishments	289	-2.7%	7,235	12.0%
Employment	20,599	0.8%	349,432	1.4%
Location Quotient	2.32		n/a	
Direct-Effect Employment Multiplier	4.3		3.9	
Total Employment Impact	87,579		1,318,459	
Average Annual Wage	\$101,040	11.1%	\$75,695	10.7%
Research, Testing, and Medical Laboratories				
Establishments	1,236	25.7%	24,231	31.0%
Employment	39,681	13.9%	467,563	9.7%
Location Quotient	3.34		n/a	
Direct-Effect Employment Multiplier	3.0		2.7	
Total Employment Impact	120,655		1,284,196	
Average Annual Wage	\$123,357	25.0%	\$91,248	15.9%
Total Bioscience Industry				
Establishments	2,090	13.8%	73,088	11.4%
Employment	77,817	3.5%	1,619,746	-0.4%
Location Quotient	1.89		n/a	
Direct-Effect Employment Multiplier	4.5		4.9	
Total Employment Impact	353,223		7,857,572	
Average Annual Wage	\$114,349	15.3%	\$88,202	12.8%
Total Private Sector				
Establishments	216,900	6.1%	8,699,564	-0.5%
Employment	2,826,854	0.2%	111,137,206	-3.1%
Average Annual Wage	\$61,480	10.1%	\$49,130	11.1%

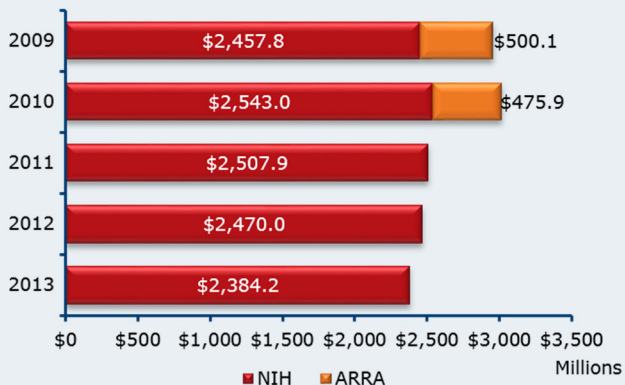
Note: U.S. employment metrics include Puerto Rico. Estimates of total impacts do not include Puerto Rico.

Bioscience Research in Massachusetts

Bioscience Academic R&D Expenditures, FY 2012

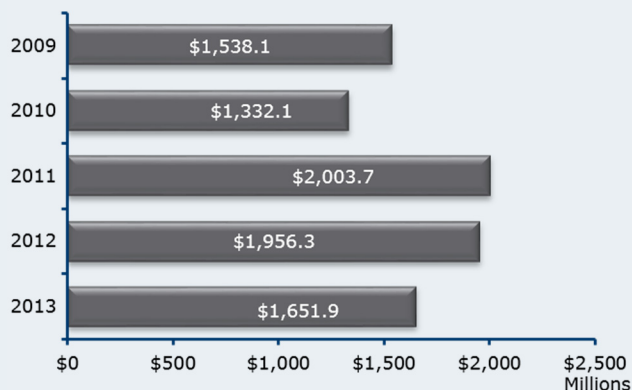


NIH Awards, 2009–2013

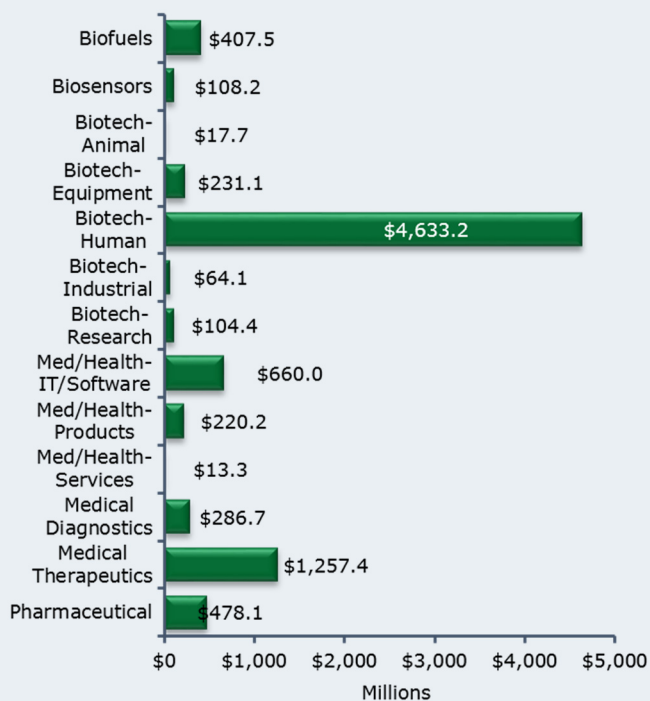


Bioscience Venture Capital in Massachusetts

Bioscience-Related Venture Capital Investments, 2009–2013

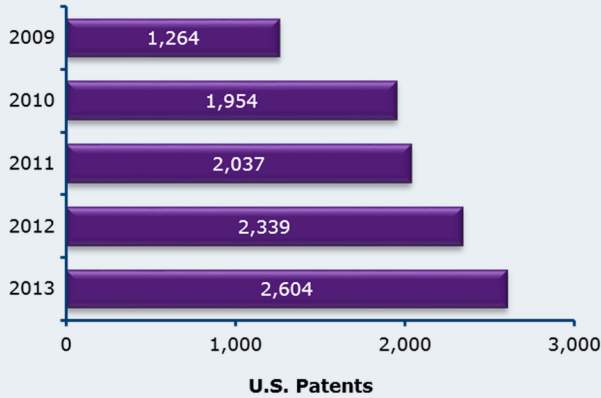


Bioscience-Related Venture Capital Investments by Segment, 2009–2013

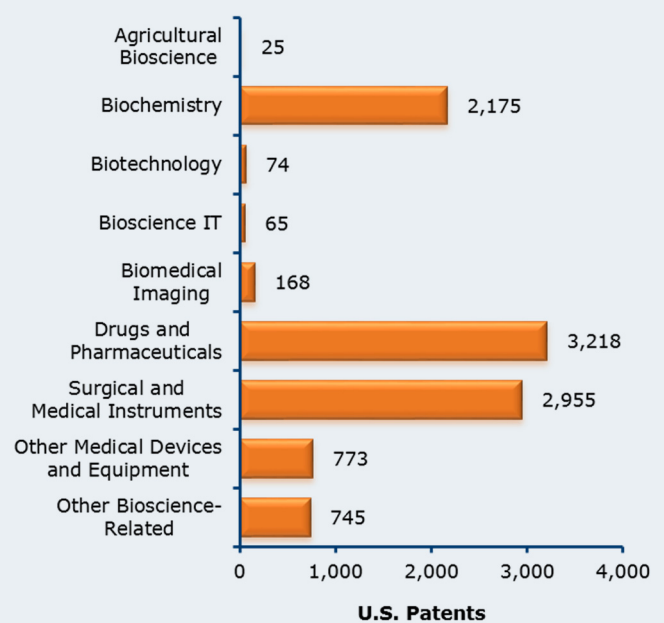


Bioscience Patents in Massachusetts

Bioscience-Related Patents, 2009–2013



Bioscience-Related Patents by Segment, 2009–2013



Source Notes

Employment, Establishments, and Wages: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW), enhanced file from the IMPLAN Group, LLC.

Employment Multipliers: IMPLAN Group, LLC state-level Input/Output models.

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), and NIH-managed funding for FY 2009 and FY 2010 from the American Recovery and Reinvestment Act (ARRA) website.

Venture Capital: Thomson Reuters Thomson ONE venture capital database.

Patents: U.S. Patent & Trademark Office data from Thomson Reuters Delphion Patent Analysis Database.

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