



TEconomy/BIO

The Value of Bioscience Innovation in Growing Jobs and Improving Quality of Life 2016

Vermont

Vermont’s bioscience industry is modest in size with employment totaling nearly 2,500 jobs in 2014 across 207 business establishments. Since 2012, the state industry has seen a small decline in its employment base (down 4 percent) though three of its five major subsectors had job increases. Vermont’s largest bioscience subsector, medical devices and equipment, employs about one-quarter of the industry. Vermont’s research universities are especially focused in the biosciences relative to other fields with their nearly \$90 million in bioscience academic R&D in 2014 accounting for 79 percent of all academic research compared with 61 percent for the national average. The state has an above-average concentration of bioscience academic R&D as well as NIH funding on a per capita basis.

Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Vermont	United States	Quintile
Bioscience Industry, 2014			
Bioscience Industry Employment	2,483	1,655,680	V
Bioscience Industry Location Quotient	0.69	n/a	IV
Bioscience Industry Establishments	207	77,283	V
Academic Bioscience R&D Expenditures, FY 2014			
Bioscience R&D (\$ thousands)	\$89,897	\$38,873,926	V
Bioscience Share of Total R&D	79%	61%	I
Bioscience R&D Per Capita	\$143	\$122	II
NIH Funding, FY 2015			
Funding (\$ thousands)	\$49,247	\$22,869,746	IV
Funding Per Capita	\$79	\$71	II
Bioscience Venture Capital Investments, 2012–15 (\$ millions)	\$10.1	\$48,742.10	IV
Bioscience and Related Patents, 2012–15	195	101,026	V

State ranking figures for bioscience performance metrics are calculated as quintiles, where:

top quintile – I II III IV V – bottom quintile

For source notes, see end of State Profile.



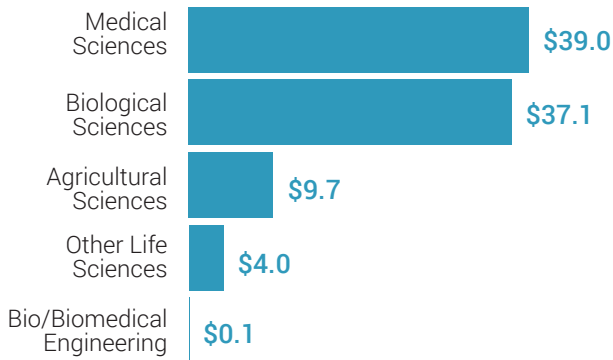
Industry Subsector	Vermont		United States	
	2014	2012–2014 Change	2014	2012–2014 Change
Agricultural Feedstock and Chemicals				
Establishments	6	20.0%	1,811	2.2%
Employment	38	15.2%	77,545	1.5%
Location Quotient	0.23		n/a	
Direct-Effect Employment Multiplier	13.8		18.4	
Total Employment Impact	527		1,432,125	
Average Annual Wage	\$38,490	-2.5%	\$80,640	6.3%
Bioscience-Related Distribution				
Establishments	128	-17.6%	37,833	2.8%
Employment	810	-0.3%	452,325	2.3%
Location Quotient	0.83		n/a	
Direct-Effect Employment Multiplier	2.7		3.0	
Total Employment Impact	2,220		1,358,820	
Average Annual Wage	\$69,701	-18.5%	\$90,458	6.2%
Drugs and Pharmaceuticals				
Establishments	8	0.0%	3,301	8.0%
Employment	635	50.5%	293,353	3.2%
Location Quotient	1.00		n/a	
Direct-Effect Employment Multiplier	9.6		11.0	
Total Employment Impact	6,080		3,242,627	
Average Annual Wage	\$77,005	2.4%	\$117,524	10.3%
Medical Devices and Equipment				
Establishments	17	-19.0%	7,636	5.5%
Employment	796	-31.5%	349,045	-0.1%
Location Quotient	1.05		n/a	
Direct-Effect Employment Multiplier	4.1		4.6	
Total Employment Impact	3,280		1,596,802	
Average Annual Wage	\$66,769	6.0%	\$79,537	5.1%
Research, Testing, and Medical Laboratories				
Establishments	48	7.9%	26,702	10.2%
Employment	204	30.1%	483,412	3.4%
Location Quotient	0.19		n/a	
Direct-Effect Employment Multiplier	2.9		3.1	
Total Employment Impact	583		1,554,719	
Average Annual Wage	\$72,780	-1.9%	\$97,485	6.8%
Total Bioscience Industry				
Establishments	207	-11.4%	77,283	5.7%
Employment	2,483	-4.0%	1,655,680	2.2%
Location Quotient	0.69		n/a	
Direct-Effect Employment Multiplier	5.0		5.5	
Total Employment Impact	12,424		9,185,094	
Average Annual Wage	\$70,400	-2.8%	\$94,543	7.2%
Total Private Sector				
Establishments	22,981	0.4%	8,937,672	2.7%
Employment	251,444	1.8%	116,018,300	4.4%
Average Annual Wage	\$42,155	4.9%	\$51,148	4.3%

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

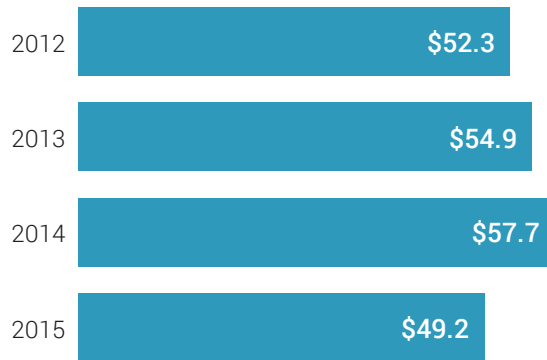


Bioscience Research in Vermont

Bioscience Academic R&D Expenditures
\$ Millions
FY 2014

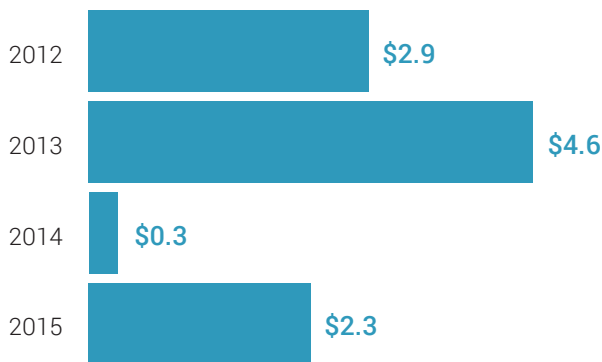


NIH Awards
\$ Millions
FY 2012-2015

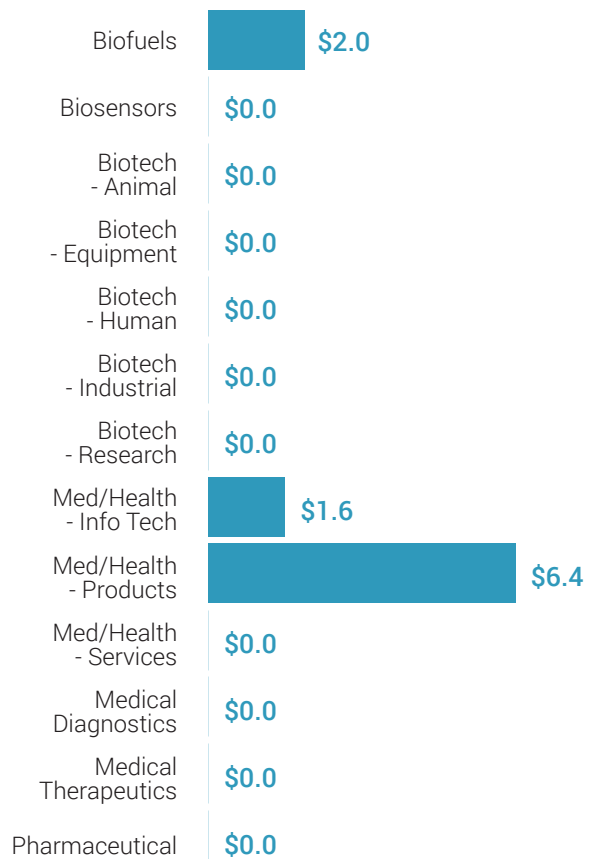


Bioscience Venture Capital in Vermont

Bioscience-Related Venture
Capital Investments
\$ Millions
2012-2015



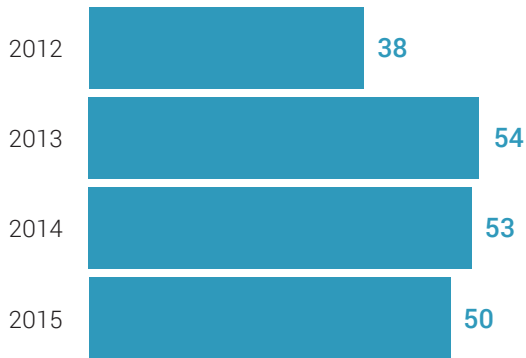
Bioscience-Related Venture
Capital Investments by Segment
\$ Millions
2012-2015



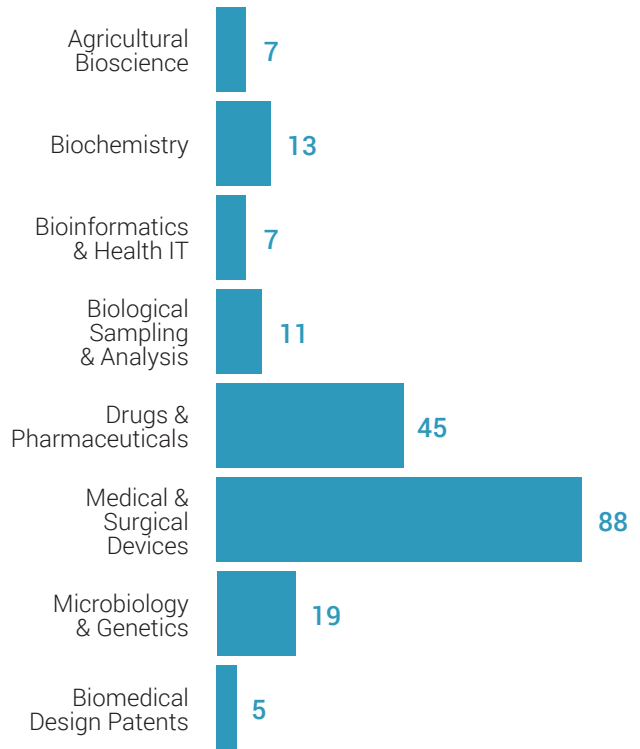


Bioscience Patents in Vermont

Bioscience-Related U.S. Patents 2012-2015



Bioscience-Related U.S. Patents by Segment 2012-2015



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).

Venture Capital: Thomson Reuters Thomson ONE venture capital database.

Patents: U.S. Patent & Trademark Office data from Thomson Reuters Thomson Innovation patent analysis database.

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

