



TEconomy/BIO

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

Pennsylvania

Pennsylvania has a large and highly concentrated bioscience industry with more than 77,000 jobs that spanned 2,358 individual business establishments in 2014. Its concentration of bioscience employment is 9 percent greater than the national average (location quotient is 1.09) and the state is considered to have a specialized employment base in two of the five major subsectors—drugs and pharmaceuticals and research, testing, and medical labs. Despite a small overall employment decline from 2012 to 2014, three of the state’s industry subsectors have increased employment. Pennsylvania is among the top tier of states in key measures of bioscience R&D and innovation including academic R&D, NIH research funding, venture capital investments, and patenting. Venture capital investments in state bioscience companies have been increasing and focused in human biotechnology, medical therapeutics, pharmaceuticals, and health information technology.

Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Pennsylvania	United States	Quintile
Bioscience Industry, 2014			
Bioscience Industry Employment	77,140	1,655,680	I
Bioscience Industry Location Quotient	1.09	n/a	II
Bioscience Industry Establishments	2,358	77,283	I
Academic Bioscience R&D Expenditures, FY 2014			
Bioscience R&D (\$ thousands)	\$2,061,958	\$38,873,926	I
Bioscience Share of Total R&D	64%	61%	III
Bioscience R&D Per Capita	\$161	\$122	I
NIH Funding, FY 2015			
Funding (\$ thousands)	\$1,500,310	\$22,869,746	I
Funding Per Capita	\$117	\$71	I
Bioscience Venture Capital Investments, 2012–15 (\$ millions)	\$1,564.0	\$48,742.10	I
Bioscience and Related Patents, 2012–15	6,754	101,026	I

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.



Pennsylvania

Industry Subsector	Pennsylvania		United States	
	2014	2012–2014 Change	2014	2012–2014 Change
Agricultural Feedstock and Chemicals				
Establishments	43	15.1%	1,811	2.2%
Employment	784	4.9%	77,545	1.5%
Location Quotient	0.24		n/a	
Direct-Effect Employment Multiplier	14.2		18.4	
Total Employment Impact	11,137		1,432,125	
Average Annual Wage	\$70,956	26.7%	\$80,640	6.3%
Bioscience-Related Distribution				
Establishments	813	-0.4%	37,833	2.8%
Employment	16,290	0.8%	452,325	2.3%
Location Quotient	0.84		n/a	
Direct-Effect Employment Multiplier	3.0		3.0	
Total Employment Impact	49,501		1,358,820	
Average Annual Wage	\$123,975	19.2%	\$90,458	6.2%
Drugs and Pharmaceuticals				
Establishments	111	-4.3%	3,301	8.0%
Employment	17,570	-8.3%	293,353	3.2%
Location Quotient	1.40		n/a	
Direct-Effect Employment Multiplier	11.7		11.0	
Total Employment Impact	205,849		3,242,627	
Average Annual Wage	\$123,601	7.3%	\$117,524	10.3%
Medical Devices and Equipment				
Establishments	278	-2.8%	7,636	5.5%
Employment	15,825	-0.8%	349,045	-0.1%
Location Quotient	1.06		n/a	
Direct-Effect Employment Multiplier	4.5		4.6	
Total Employment Impact	71,145		1,596,802	
Average Annual Wage	\$65,612	0.7%	\$79,537	5.1%
Research, Testing, and Medical Laboratories				
Establishments	1,114	5.6%	26,702	10.2%
Employment	26,670	1.6%	483,412	3.4%
Location Quotient	1.29		n/a	
Direct-Effect Employment Multiplier	3.3		3.1	
Total Employment Impact	87,563		1,554,719	
Average Annual Wage	\$101,945	0.9%	\$97,485	6.8%
Total Bioscience Industry				
Establishments	2,358	2.1%	77,283	5.7%
Employment	77,140	-1.5%	1,655,680	2.2%
Location Quotient	1.09		n/a	
Direct-Effect Employment Multiplier	5.7		5.5	
Total Employment Impact	436,576		9,185,094	
Average Annual Wage	\$103,761	6.6%	\$94,543	7.2%
Total Private Sector				
Establishments	334,042	-0.8%	8,937,672	2.7%
Employment	4,960,644	1.5%	116,018,300	4.4%
Average Annual Wage	\$50,310	4.5%	\$51,148	4.3%

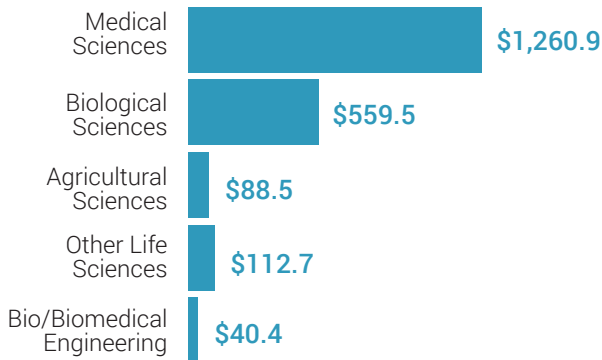
Note: U.S. employment metrics include Puerto Rico.



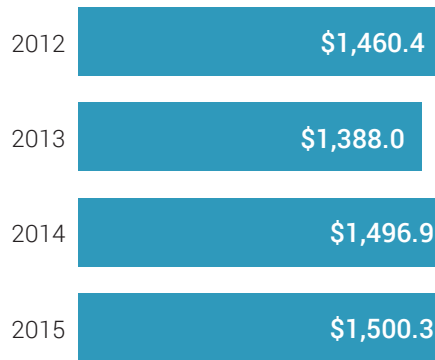
Pennsylvania

Bioscience Research in Pennsylvania

Bioscience Academic R&D Expenditures
\$ Millions
FY 2014

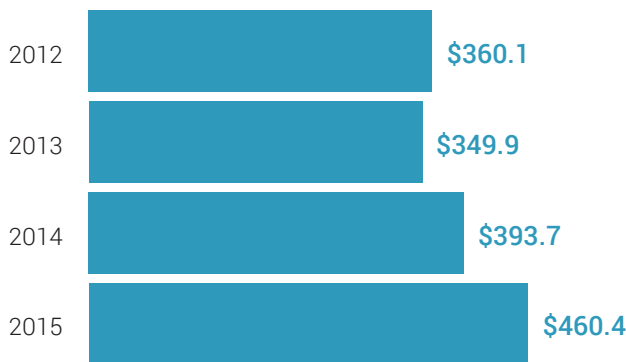


NIH Awards
\$ Millions
FY 2012-2015

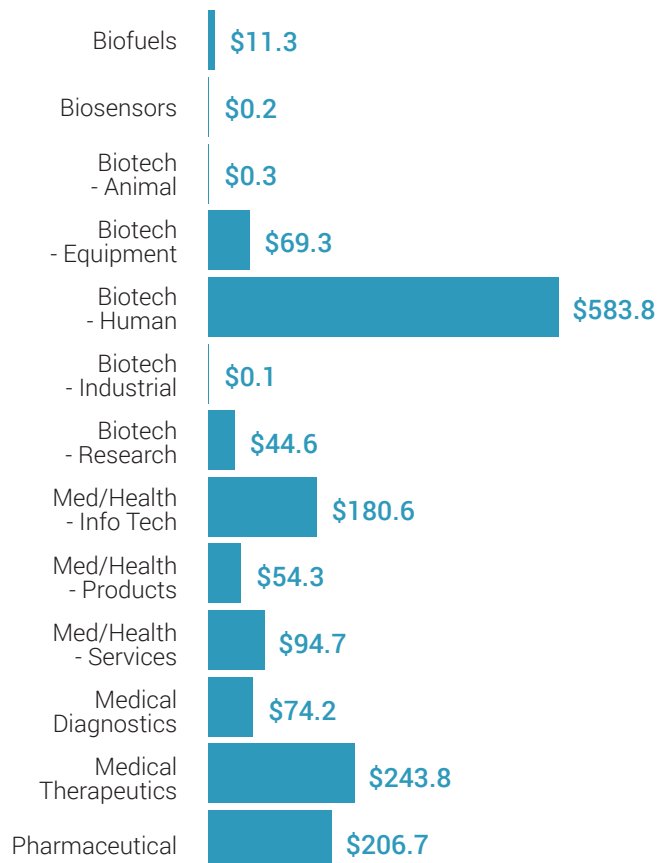


Bioscience Venture Capital in Pennsylvania

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



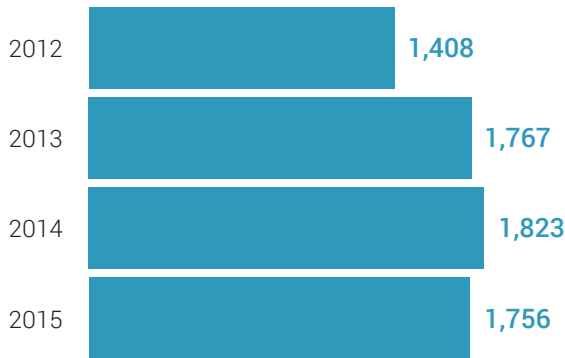
Bioscience-Related Venture Capital Investments by Segment
\$ Millions
2012-2015



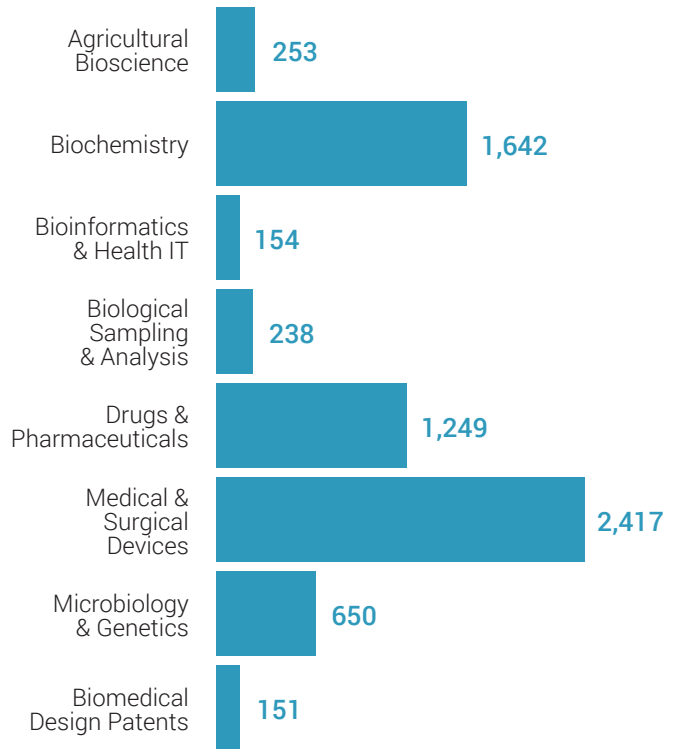


Bioscience Patents in Pennsylvania

**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.

