



Ohio has a sizable bioscience industry base that has seen moderate growth in recent years. State firms have increased employment by 1.6 percent from 2014 through 2016 to reach more than 48,000 jobs across 2,918 business establishments across the state. Job gains were contributed by three of the five industry subsectors. Ohio has a specialized employment concentration in the agricultural feedstock and industrial biosciences subsector as well as an above-average concentration in bioscience-related distribution, both of which have increased employment in the 2-year period. Ohio is among the top tier of states in key innovation-driving facets of the biosciences including in academic R&D expenditures (\$1.3 billion in 2016); NIH funding (rising to \$754 million in FY 2017); and in bioscience-related patent awards (4,553 from 2014-17).

Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Ohio	United States	Quintile
Bioscience Industry, 2016			
Bioscience Industry Employment	48,223	1,743,639	II
Bioscience Industry Location Quotient	0.73	n/a	III
Bioscience Industry Establishments	2,918	85,702	I
Academic Bioscience R&D Expenditures, FY 2016			
Bioscience R&D (\$ thousands)	\$1,344,444	\$41,972,205	I
Bioscience Share of Total R&D	65%	62%	II
Bioscience R&D Per Capita	\$116	\$130	III
NIH Funding, FY 2017			
Funding (\$ thousands)	\$754,319	\$26,150,485	I
Funding Per Capita	\$65	\$80	II
Bioscience Venture Capital Investments, 2014-17 (\$ millions)	\$806.05	\$66,168.62	II
Bioscience and Related Patents, 2014-17	4,553	102,862	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	Ohio		United States	
	2016	2014-2016 Change	2016	2014-2016 Change
Agricultural Feedstock and Industrial Biosciences				
Establishments	43	-31.7%	1,709	-3.2%
Employment	3,107	16.8%	68,027	-1.2%
Location Quotient	1.20		n/a	
Direct-Effect Employment Multiplier	9.42			
Total Employment Impact	29,275			
Average Annual Wage	\$93,594	9.5%	\$80,961	2.7%
Bioscience-Related Distribution				
Establishments	1,548	6.2%	39,149	3.8%
Employment	19,114	5.6%	469,640	3.7%
Location Quotient	1.07		n/a	
Direct-Effect Employment Multiplier	2.31			
Total Employment Impact	44,168			
Average Annual Wage	\$81,919	-0.3%	\$93,677	2.7%
Drugs and Pharmaceuticals				
Establishments	51	13.3%	3,754	13.7%
Employment	4,844	-2.8%	299,113	2.0%
Location Quotient	0.43		n/a	
Direct-Effect Employment Multiplier	6.68			
Total Employment Impact	32,362			
Average Annual Wage	\$79,424	-12.3%	\$113,815	-3.2%
Medical Devices and Equipment				
Establishments	191	-9.0%	8,083	5.9%
Employment	9,232	6.2%	359,293	2.9%
Location Quotient	0.67		n/a	
Direct-Effect Employment Multiplier	2.85			
Total Employment Impact	26,297			
Average Annual Wage	\$60,403	10.8%	\$84,746	6.5%
Research, Testing and Medical Laboratories				
Establishments	1,085	10.5%	33,007	13.1%
Employment	11,925	-8.5%	547,566	8.2%
Location Quotient	0.57		n/a	
Direct-Effect Employment Multiplier	2.32			
Total Employment Impact	27,650			
Average Annual Wage	\$76,284	6.0%	\$106,942	5.5%
Total Bioscience Industry				
Establishments	2,918	5.8%	85,702	7.7%
Employment	48,223	1.6%	1,743,639	4.4%
Location Quotient	0.73		n/a	
Direct-Effect Employment Multiplier	3.31			
Total Employment Impact	159,752			
Average Annual Wage	\$76,908	2.0%	\$98,961	3.1%
Total Private Sector				
Establishments	278,039	1.7%	9,243,034	3.4%
Employment	4,606,278	2.9%	120,884,570	4.2%
Average Annual Wage	\$46,983	3.3%	\$53,354	4.3%

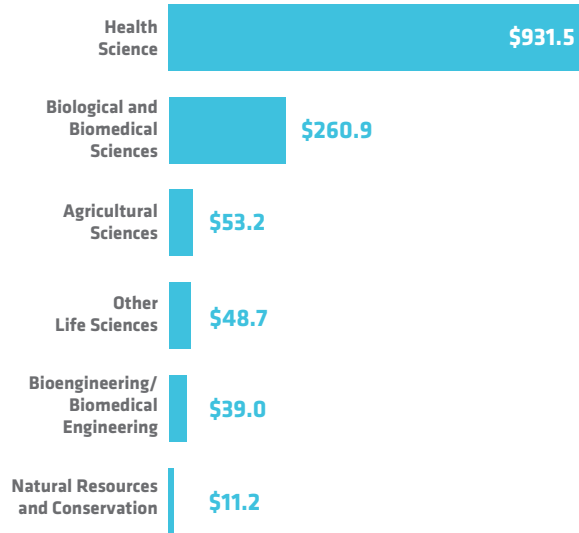
Note: U.S. employment metrics include Puerto Rico.

Bioscience Research in Ohio

Bioscience Academic R&D Expenditures

\$ Millions

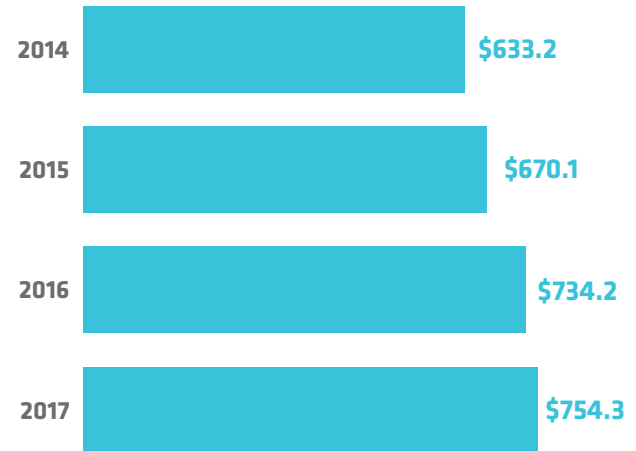
FY 2016



NIH Awards

\$ Millions

FY 2014-2017

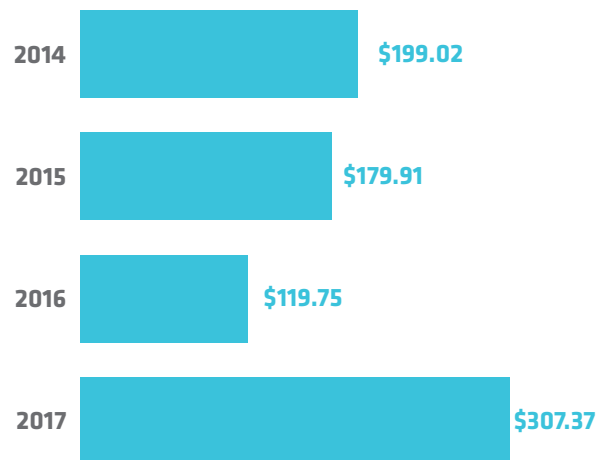


Bioscience Venture Capital in Ohio

Bioscience-Related Venture Capital Investments

\$ Millions

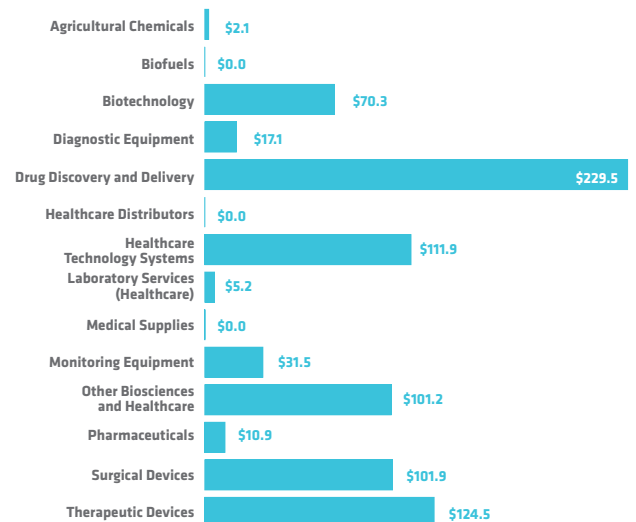
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Bioscience-Related Venture Capital Investments by Segment

\$ Millions

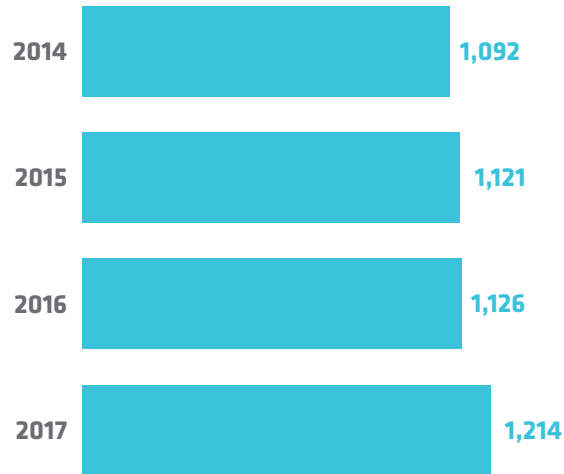
2014-2017



Bioscience Patents in Ohio

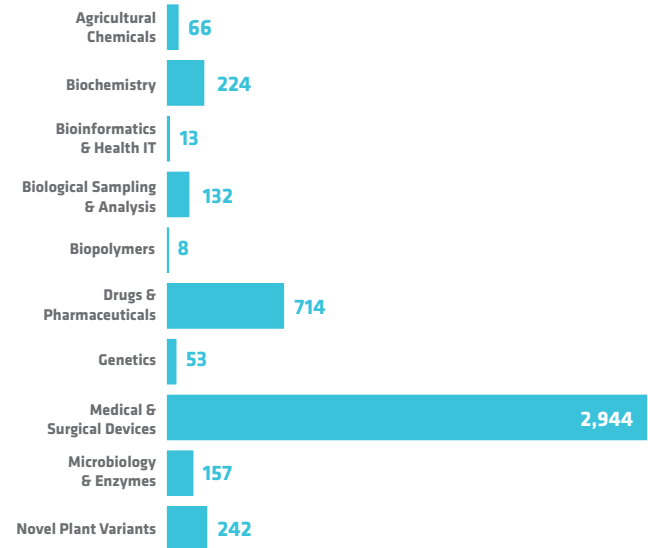
Bioscience-Related U.S. Patents

2014-2017



Bioscience-Related U.S. Patents by Segment

2014-2017



Source Notes

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

Employment Multipliers: IMPLAN 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: 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.