



Maryland's bioscience industry is large, well concentrated, and growing. From 2014 through 2016 the state's bioscience companies increased their employment base by 5.5 percent, outpacing national job growth and reaching more than 36,000 jobs that span 2,281 state establishments. The industry in Maryland is 17 percent more concentrated compared with the national average (location quotient is 1.17). Within the industry, the state has specialized employment concentrations in two subsectors—research, testing and medical labs and drugs and pharmaceuticals. Four of its industry subsectors contributed to the overall job gains since 2014. Maryland is among the top tier of states in two key areas of the industry's innovation ecosystem—bioscience-related academic R&D and NIH funding awards. In NIH funding, the state has seen a steady increase in these awards in recent years, reaching \$1.6 billion in FY 2017.

Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Maryland	United States	Quintile
Bioscience Industry, 2016			
Bioscience Industry Employment	36,194	1,743,639	II
Bioscience Industry Location Quotient	1.17	n/a	II
Bioscience Industry Establishments	2,281	85,702	II
Academic Bioscience R&D Expenditures, FY 2016			
Bioscience R&D (\$ thousands)	\$1,708,746	\$41,972,205	I
Bioscience Share of Total R&D	46%	62%	V
Bioscience R&D Per Capita	\$284	\$130	I
NIH Funding, FY 2017			
Funding (\$ thousands)	\$1,611,923	\$26,150,485	I
Funding Per Capita	\$266	\$80	I
Bioscience Venture Capital Investments, 2014-17 (\$ millions)	\$954.82	\$66,168.62	II
Bioscience and Related Patents, 2014-17	3,679	102,862	II

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	Maryland		United States	
	2016	2014-2016 Change	2016	2014-2016 Change
Agricultural Feedstock and Industrial Biosciences				
Establishments	20	33.3%	1,709	-3.2%
Employment	243	-19.3%	68,027	-1.2%
Location Quotient	0.20		n/a	
Direct-Effect Employment Multiplier	4.32			
Total Employment Impact	1,048			
Average Annual Wage	\$83,934	24.8%	\$80,961	2.7%
Bioscience-Related Distribution				
Establishments	739	0.5%	39,149	3.8%
Employment	6,013	2.5%	469,640	3.7%
Location Quotient	0.72		n/a	
Direct-Effect Employment Multiplier	2.13			
Total Employment Impact	12,834			
Average Annual Wage	\$101,655	3.6%	\$93,677	2.7%
Drugs and Pharmaceuticals				
Establishments	89	7.2%	3,754	13.7%
Employment	7,247	4.0%	299,113	2.0%
Location Quotient	1.37		n/a	
Direct-Effect Employment Multiplier	3.65			
Total Employment Impact	26,440			
Average Annual Wage	\$136,765	4.7%	\$113,815	-3.2%
Medical Devices and Equipment				
Establishments	108	8.0%	8,083	5.9%
Employment	2,498	3.6%	359,293	2.9%
Location Quotient	0.39		n/a	
Direct-Effect Employment Multiplier	2.53			
Total Employment Impact	6,326			
Average Annual Wage	\$85,001	7.3%	\$84,746	6.5%
Research, Testing and Medical Laboratories				
Establishments	1,325	15.4%	33,007	13.1%
Employment	20,194	7.7%	547,566	8.2%
Location Quotient	2.08		n/a	
Direct-Effect Employment Multiplier	2.54			
Total Employment Impact	51,289			
Average Annual Wage	\$101,170	9.5%	\$106,942	5.5%
Total Bioscience Industry				
Establishments	2,281	9.6%	85,702	7.7%
Employment	36,194	5.5%	1,743,639	4.4%
Location Quotient	1.17		n/a	
Direct-Effect Employment Multiplier	2.71			
Total Employment Impact	97,937			
Average Annual Wage	\$107,146	7.2%	\$98,961	3.1%
Total Private Sector				
Establishments	167,187	2.3%	9,243,034	3.4%
Employment	2,141,577	3.6%	120,884,570	4.2%
Average Annual Wage	\$55,751	4.9%	\$53,354	4.3%

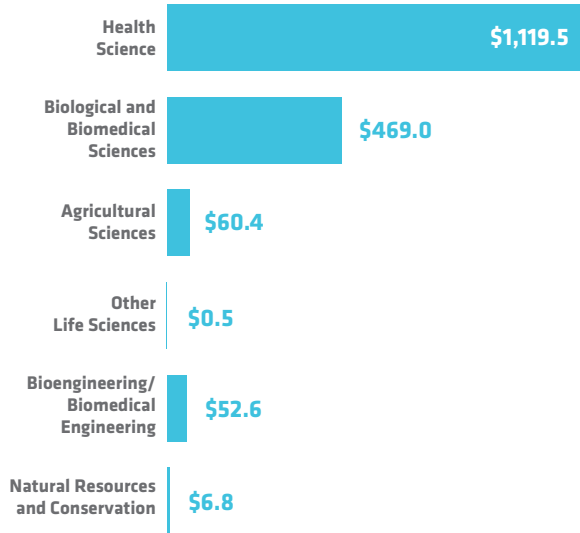
Note: U.S. employment metrics include Puerto Rico.

Bioscience Research in Maryland

Bioscience Academic R&D Expenditures

\$ Millions

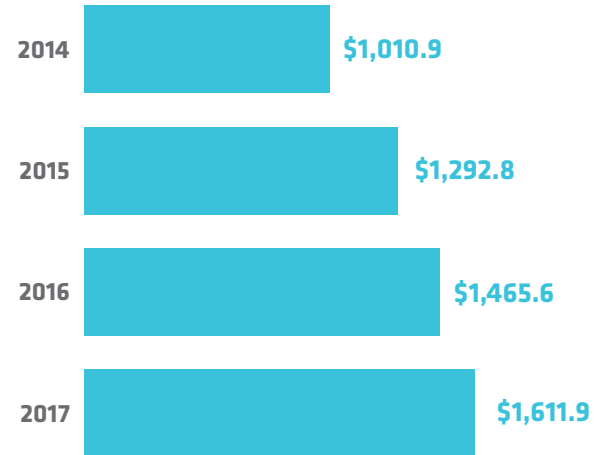
FY 2016



NIH Awards

\$ Millions

FY 2014-2017

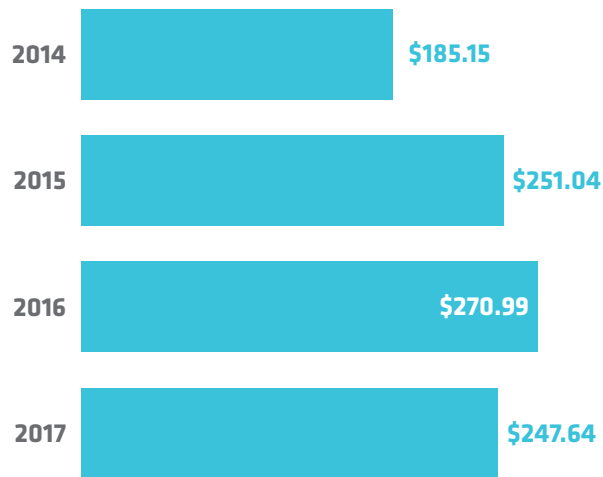


Bioscience Venture Capital in Maryland

Bioscience-Related Venture Capital Investments

\$ Millions

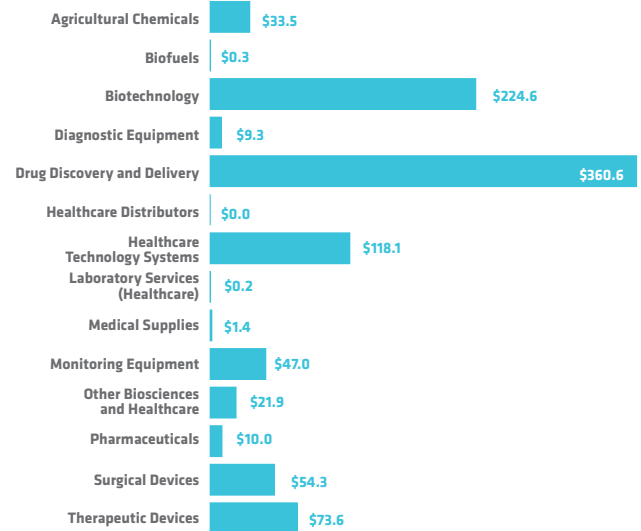
2014-2017



Bioscience-Related Venture Capital Investments by Segment

\$ Millions

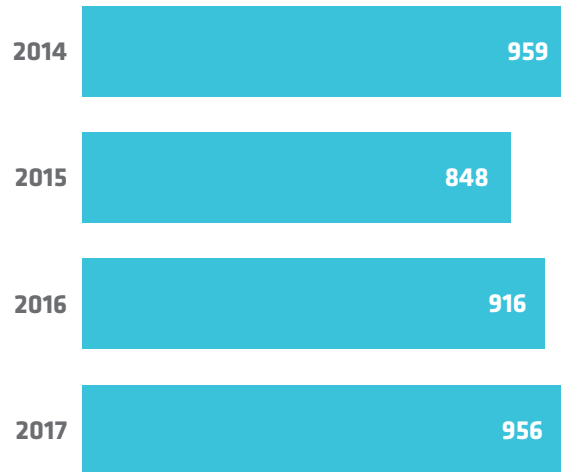
2014-2017



Bioscience Patents in Maryland

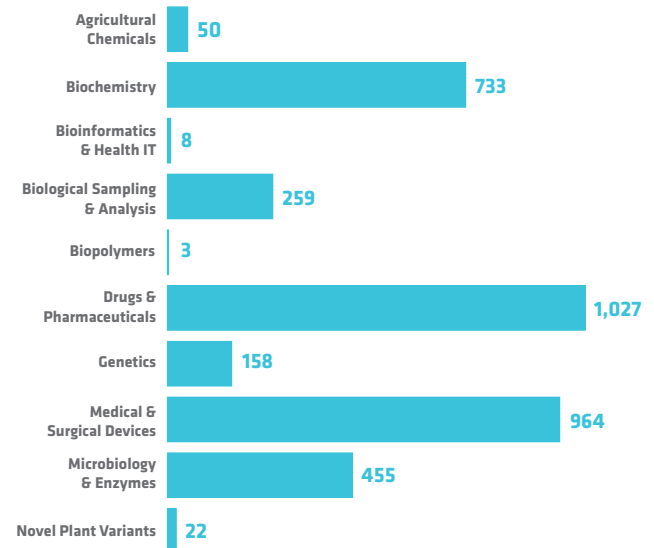
Bioscience-Related U.S. Patents

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.