



Arizona

The Bioscience Economy: Propelling Life-Saving Treatments, Supporting State & Local Communities

Arizona’s bioscience industry is growing rapidly and reached nearly 30,000 jobs spanning 2,160 business establishments in 2018. Industry employment has grown by 15 percent since 2016—twice the growth rate of the nation—with each of the five major subsectors adding jobs during the period. Arizona’s universities conducted nearly \$580 million in R&D activities in bioscience-related fields in 2018, fueled in part by steadily increasing NIH awards to Arizona institutions since 2016. Venture capital investments in Arizona bioscience companies increased in 2019, and during the 2016-19 period totaled \$349 million. Arizona inventors have been awarded 2,178 bioscience-related patents since 2016, among the second quintile of states in patent activity.

Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Arizona	United States	Quintile
Bioscience Industry, 2018			
Bioscience Industry Employment	29,569	1,869,955	III
Bioscience Industry Location Quotient	0.81	n/a	III
Bioscience Industry Establishments	2,160	101,143	II
Academic Bioscience R&D Expenditures, FY 2018			
Academic Bioscience R&D (\$ thousands)	\$579,652	\$47,183,197	III
Bioscience Share of Total Academic R&D	45%	63%	V
Academic Bioscience R&D Per Capita	\$81	\$144	IV
NIH Funding, FY 2019			
Funding (\$ thousands)	\$262,962	\$30,886,675	III
Funding Per Capita	\$36	\$94	IV
Bioscience Venture Capital Investments, 2016-19 (\$ millions)	\$349.35	\$102,728.33	III
Bioscience-Related Patents, 2016-19	2,178	108,438	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.



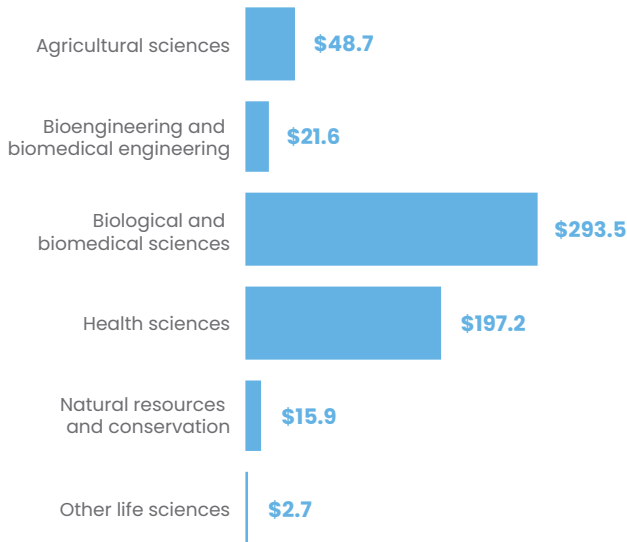
Industry Subsector	Arizona		United States	
	2018	2016–2018 Change	2018	2016–2018 Change
Agricultural Feedstock and Industrial Biosciences				
Establishments	16	45.5%	1,785	4.4%
Employment	665	12.0%	68,642	0.9%
Location Quotient	0.50		n/a	
Direct-Effect Employment Multiplier	4.37			
Total Employment Impact	2,908			
Average Annual Wage	\$54,251	5.3%	\$83,151	2.7%
Bioscience-Related Distribution				
Establishments	1,406	96.8%	51,582	31.8%
Employment	10,128	24.3%	545,055	16.1%
Location Quotient	0.95		n/a	
Direct-Effect Employment Multiplier	5.02			
Total Employment Impact	50,890			
Average Annual Wage	\$114,484	18.9%	\$105,905	13.1%
Drugs and Pharmaceuticals				
Establishments	75	29.3%	4,451	18.6%
Employment	3,237	42.2%	308,357	3.1%
Location Quotient	0.54		n/a	
Direct-Effect Employment Multiplier	4.90			
Total Employment Impact	15,850			
Average Annual Wage	\$58,757	5.4%	\$113,544	-0.2%
Medical Devices and Equipment				
Establishments	122	11.9%	8,753	8.3%
Employment	6,932	12.1%	378,431	5.3%
Location Quotient	0.94		n/a	
Direct-Effect Employment Multiplier	3.02			
Total Employment Impact	20,946			
Average Annual Wage	\$76,651	9.8%	\$90,541	6.8%
Research, Testing, and Medical Laboratories				
Establishments	541	29.6%	34,572	4.7%
Employment	8,607	1.5%	569,470	4.0%
Location Quotient	0.78		n/a	
Direct-Effect Employment Multiplier	2.42			
Total Employment Impact	20,853			
Average Annual Wage	\$71,057	-3.5%	\$120,320	12.5%
Total Bioscience Industry				
Establishments	2,160	64.9%	101,143	18.0%
Employment	29,569	15.1%	1,869,955	7.2%
Location Quotient	0.81		n/a	
Direct-Effect Employment Multiplier	3.77			
Total Employment Impact	111,447			
Average Annual Wage	\$85,518	9.9%	\$107,610	8.7%
Total Private Sector				
Establishments	158,434	4.8%	9,776,674	3.1%
Employment	2,436,476	6.2%	125,195,944	3.3%
Average Annual Wage	\$51,476	7.0%	\$57,043	6.9%

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

Bioscience Research in Arizona

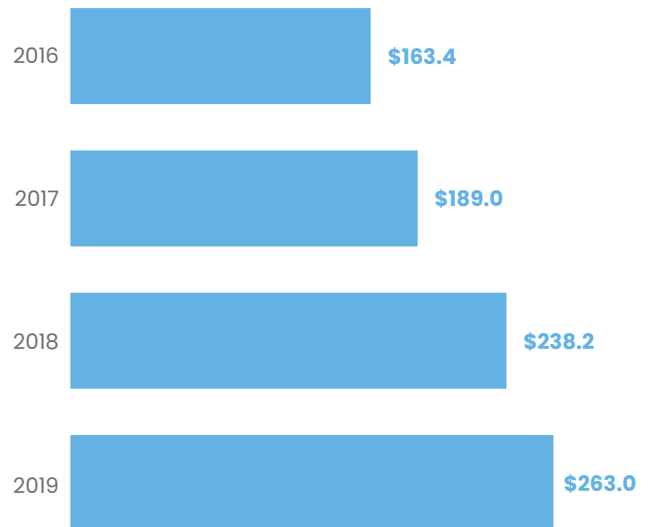
Bioscience Academic R&D Expenditures

\$ Millions, FY 2018



NIH Awards

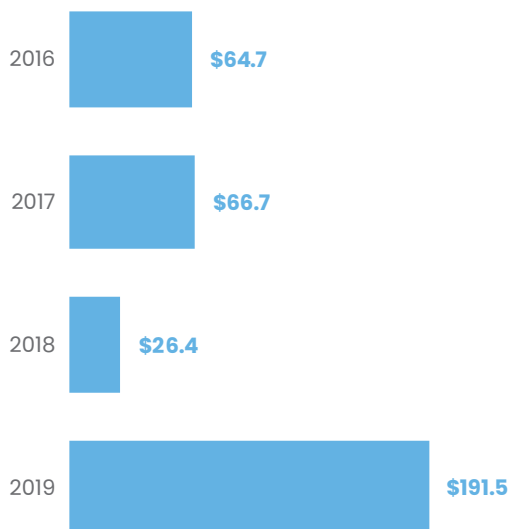
\$ Millions, FY 2016-2019



Bioscience Venture Capital in Arizona

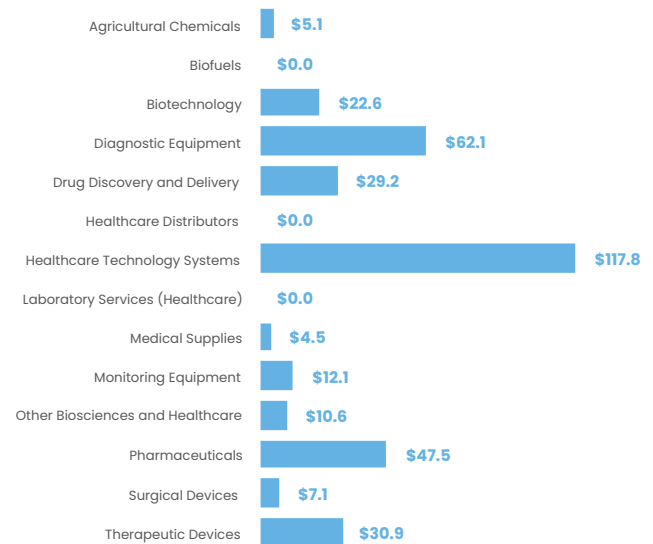
Bioscience-Related Venture Capital Investments

\$ Millions, 2016-2019



Bioscience-Related Venture Capital Investments by Segment

\$ Millions, 2016-2019

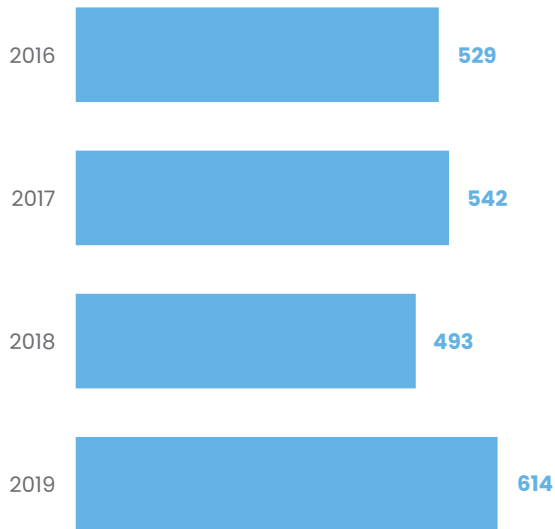




Bioscience Patents in Arizona

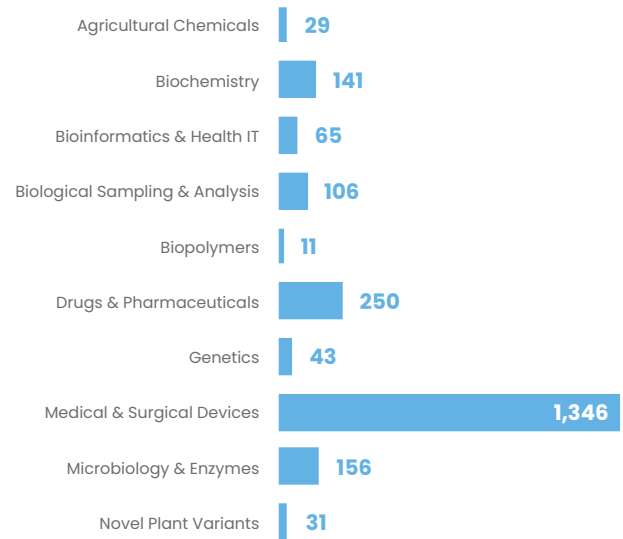
Bioscience-Related U.S. Patents

2016-2019



Bioscience-Related U.S. Patents by Segment

2016-2019



Source Notes

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

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

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.

