



TEconomy/BIO

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

Arizona

Arizona’s bioscience industry has grown in recent years and by 2014 state bioscience firms employed just over 24,000 in nearly 1,300 business establishments. Four of the state’s five bioscience subsectors have contributed to its 2 percent overall employment gain since 2012, led by double-digit job growth in medical devices (up 11 percent). State academic institutions accounted for nearly \$400 million in bioscience-related R&D expenditures in 2014 and NIH funding to these and other non-academic institutions totaled \$150.6 million in 2015. Arizona inventors have had 1,751 patents issued in bioscience-related classes since 2012, primarily in medical and surgical devices but also in drugs and pharmaceuticals, microbiology and genetics, and in biochemistry. The state has seen a strong increase in venture capital invested in bioscience-related companies in recent years.

Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Arizona	United States	Quintile
Bioscience Industry, 2014			
Bioscience Industry Employment	24,040	1,655,680	III
Bioscience Industry Location Quotient	0.78	n/a	III
Bioscience Industry Establishments	1,284	77,283	II
Academic Bioscience R&D Expenditures, FY 2014			
Bioscience R&D (\$ thousands)	\$399,696	\$38,873,926	III
Bioscience Share of Total R&D	40%	61%	V
Bioscience R&D Per Capita	\$59	\$122	V
NIH Funding, FY 2015			
Funding (\$ thousands)	\$150,572	\$22,869,746	III
Funding Per Capita	\$22	\$71	IV
Bioscience Venture Capital Investments, 2012–15 (\$ millions)	\$216.8	\$48,742.10	III
Bioscience and Related Patents, 2012–15	1,751	101,026	III

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	Arizona		United States	
	2014	2012–2014 Change	2014	2012–2014 Change
Agricultural Feedstock and Chemicals				
Establishments	14	-12.5%	1,811	2.2%
Employment	595	0.6%	77,545	1.5%
Location Quotient	0.41		n/a	
Direct-Effect Employment Multiplier	17.1		18.4	
Total Employment Impact	10,196		1,432,125	
Average Annual Wage	\$53,324	18.5%	\$80,640	6.3%
Bioscience-Related Distribution				
Establishments	755	-2.1%	37,833	2.8%
Employment	8,021	-4.8%	452,325	2.3%
Location Quotient	0.96		n/a	
Direct-Effect Employment Multiplier	3.2		3.0	
Total Employment Impact	25,891		1,358,820	
Average Annual Wage	\$94,975	-26.1%	\$90,458	6.2%
Drugs and Pharmaceuticals				
Establishments	47	14.6%	3,301	8.0%
Employment	1,867	2.5%	293,353	3.2%
Location Quotient	0.34		n/a	
Direct-Effect Employment Multiplier	12.2		11.0	
Total Employment Impact	22,849		3,242,627	
Average Annual Wage	\$54,289	5.4%	\$117,524	10.3%
Medical Devices and Equipment				
Establishments	107	17.6%	7,636	5.5%
Employment	6,082	11.1%	349,045	-0.1%
Location Quotient	0.94		n/a	
Direct-Effect Employment Multiplier	4.7		4.6	
Total Employment Impact	28,766		1,596,802	
Average Annual Wage	\$67,354	4.3%	\$79,537	5.1%
Research, Testing, and Medical Laboratories				
Establishments	362	4.3%	26,702	10.2%
Employment	7,475	3.4%	483,412	3.4%
Location Quotient	0.84		n/a	
Direct-Effect Employment Multiplier	3.1		3.1	
Total Employment Impact	23,026		1,554,719	
Average Annual Wage	\$71,059	12.2%	\$97,485	6.8%
Total Bioscience Industry				
Establishments	1,284	1.4%	77,283	5.7%
Employment	24,040	2.1%	1,655,680	2.2%
Location Quotient	0.78		n/a	
Direct-Effect Employment Multiplier	5.2		5.5	
Total Employment Impact	124,005		9,185,094	
Average Annual Wage	\$76,360	-10.8%	\$94,543	7.2%
Total Private Sector				
Establishments	137,099	-1.7%	8,937,672	2.7%
Employment	2,147,012	5.2%	116,018,300	4.4%
Average Annual Wage	\$46,514	2.8%	\$51,148	4.3%

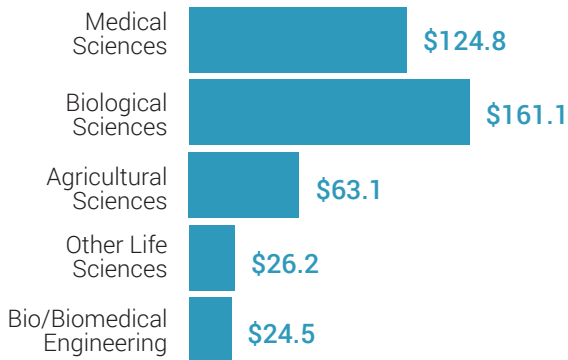
Note: U.S. employment metrics include Puerto Rico.



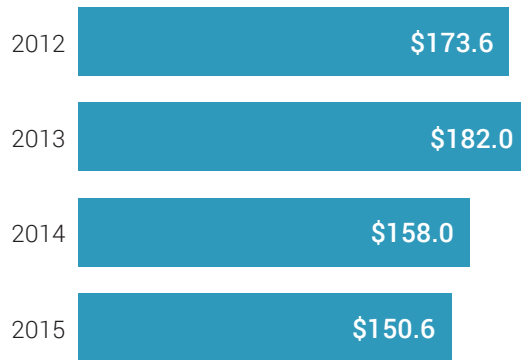
Arizona

Bioscience Research in Arizona

Bioscience Academic R&D Expenditures
\$ Millions
FY 2014

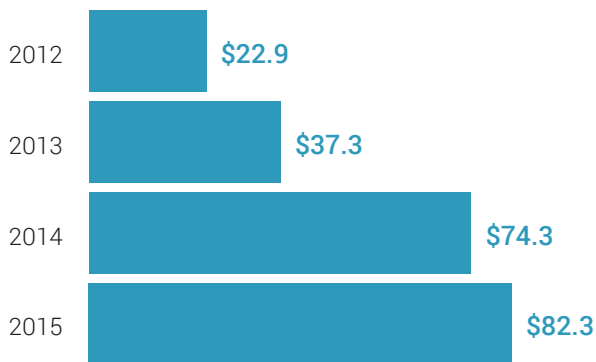


NIH Awards
\$ Millions
FY 2012-2015

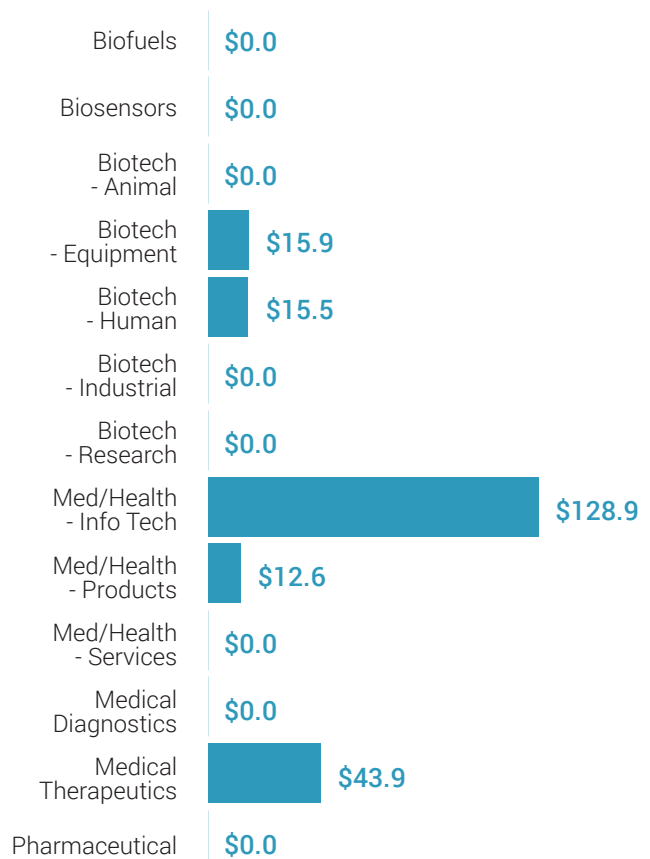


Bioscience Venture Capital in Arizona

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



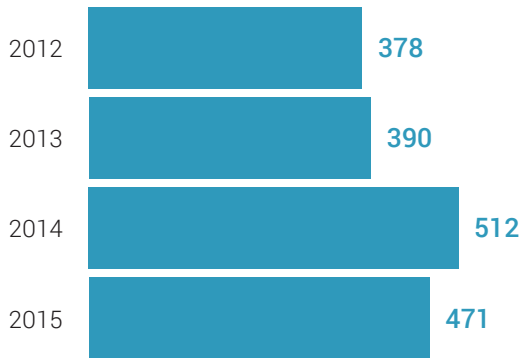
Bioscience-Related Venture
Capital Investments by Segment
\$ Millions
2012-2015



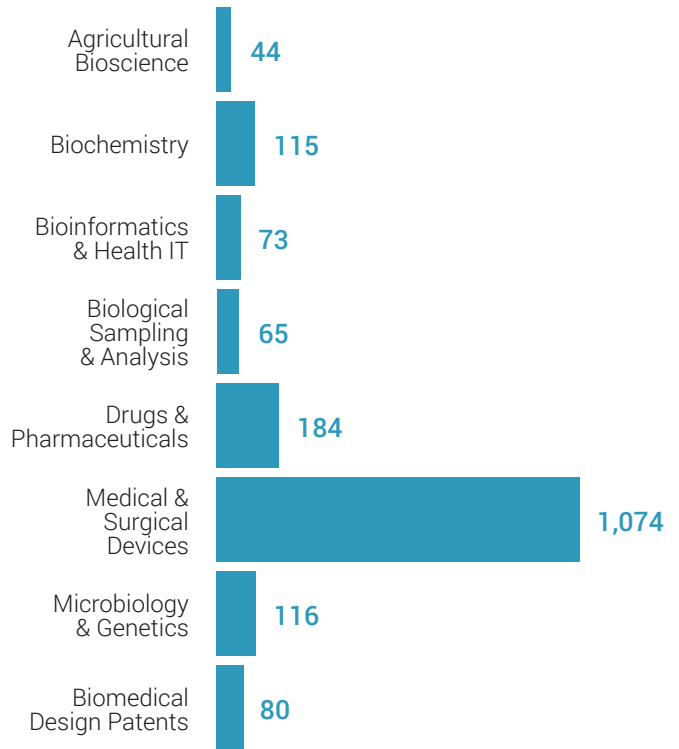


Bioscience Patents in Arizona

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.

