TEConomy/BIO

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

Michigan

Michigan's bioscience industry has grown in recent years, and by 2014 employed more than 44,000 in 1,833 business establishments across the state. The sizable state industry has grown by 5.7 percent since 2012, with jobs increasing in four of the five major industry subsectors. Michigan's drugs and pharmaceuticals sector has experienced double-digit job growth during this two-year period (up 11 percent). The state has a strong employment concentration in medical devices with a location quotient of 1.10. Michigan's research universities conducted more than $1.2 billion in bioscience-related R&D in 2014, placing it among the top tier of all states. The state's diverse strengths in medical device manufacturing and drugs and pharmaceuticals are evident in the focus areas of the 2,333 patents recently issued in bioscience-related technologies.

Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Michigan	United States	Quintile
Bioscience Industry, 2014			
Bioscience Industry Employment	44,277	1,655,680	II
Bioscience Industry Location Quotient	0.88	n/a	III
Bioscience Industry Establishments	1,833	77,283	II
Academic Bioscience R&D Expenditures, FY 2014			
Bioscience R&D ($ thousands)	$1,214,255	$38,873,926	I
Bioscience Share of Total R&D	57%	61%	III
Bioscience R&D Per Capita	$122	$122	II
NIH Funding, FY 2015			
Funding ($ thousands)	$622,759	$22,869,746	II
Funding Per Capita	$63	$71	II
Bioscience Venture Capital Investments, 2012–15 ($ millions)	$666.5	$48,742.10	II
Bioscience and Related Patents, 2012–15	2,333	101,026	II

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.

Michigan

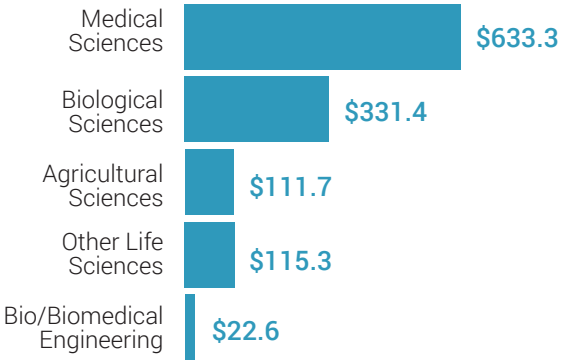
Industry Subsector	Michigan		United States	
	2014	2012–2014 Change	2014	2012–2014 Change
Agricultural Feedstock and Chemicals				
Establishments	36	24.1%	1,811	2.2%
Employment	632	-34.4%	77,545	1.5%
Location Quotient	0.27		n/a	
Direct-Effect Employment Multiplier	17.7		18.4	
Total Employment Impact	11,200		1,432,125	
Average Annual Wage	$69,865	6.8%	$80,640	6.3%
Bioscience-Related Distribution				
Establishments	941	-2.7%	37,833	2.8%
Employment	12,130	6.0%	452,325	2.3%
Location Quotient	0.88		n/a	
Direct-Effect Employment Multiplier	3.1		3.0	
Total Employment Impact	37,198		1,358,820	
Average Annual Wage	$83,931	3.1%	$90,458	6.2%
Drugs and Pharmaceuticals				
Establishments	97	49.2%	3,301	8.0%
Employment	8,813	11.0%	293,353	3.2%
Location Quotient	0.99		n/a	
Direct-Effect Employment Multiplier	11.3		11.0	
Total Employment Impact	99,963		3,242,627	
Average Annual Wage	$78,444	-7.2%	$117,524	10.3%
Medical Devices and Equipment				
Establishments	298	24.2%	7,636	5.5%
Employment	11,736	5.7%	349,045	-0.1%
Location Quotient	1.10		n/a	
Direct-Effect Employment Multiplier	4.6		4.6	
Total Employment Impact	53,530		1,596,802	
Average Annual Wage	$72,538	9.0%	$79,537	5.1%
Research, Testing, and Medical Laboratories				
Establishments	460	0.2%	26,702	10.2%
Employment	10,966	5.0%	483,412	3.4%
Location Quotient	0.75		n/a	
Direct-Effect Employment Multiplier	3.6		3.1	
Total Employment Impact	38,976		1,554,719	
Average Annual Wage	$99,533	3.8%	$97,485	6.8%
Total Bioscience Industry				
Establishments	1,833	4.1%	77,283	5.7%
Employment	44,277	5.7%	1,655,680	2.2%
Location Quotient	0.88		n/a	
Direct-Effect Employment Multiplier	5.6		5.5	
Total Employment Impact	248,348		9,185,094	
Average Annual Wage	$83,482	2.7%	$94,543	7.2%
Total Private Sector				
Establishments	224,004	2.3%	8,937,672	2.7%
Employment	3,532,019	5.1%	116,018,300	4.4%
Average Annual Wage	$48,054	4.0%	$51,148	4.3%

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

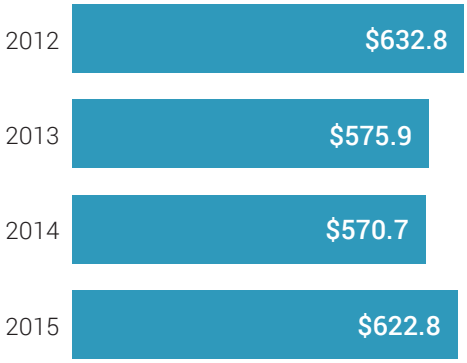
Michigan

Bioscience Research in Michigan

Bioscience Academic R&D Expenditures
$ Millions
FY 2014

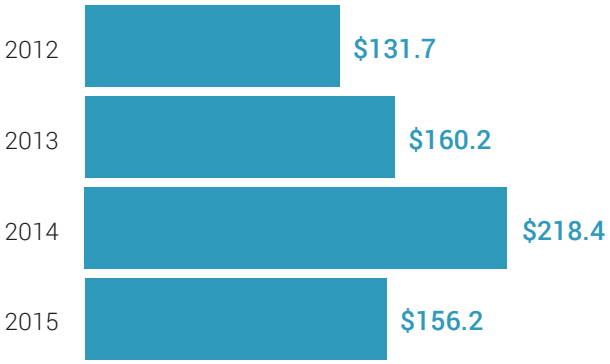


NIH Awards
$ Millions
FY 2012-2015

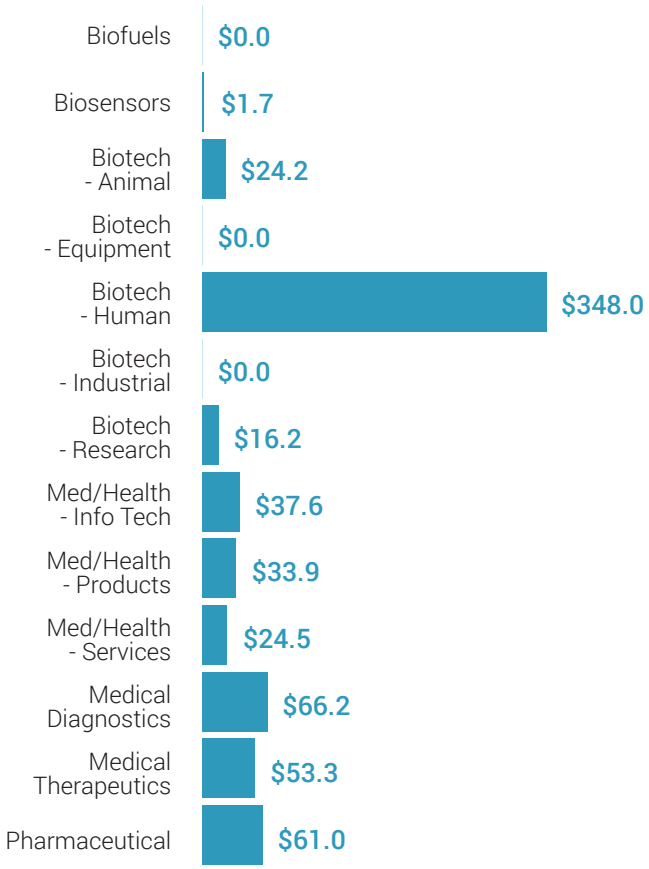


Bioscience Venture Capital in Michigan

Bioscience-Related Venture Capital Investments
$ Millions
2012-2015



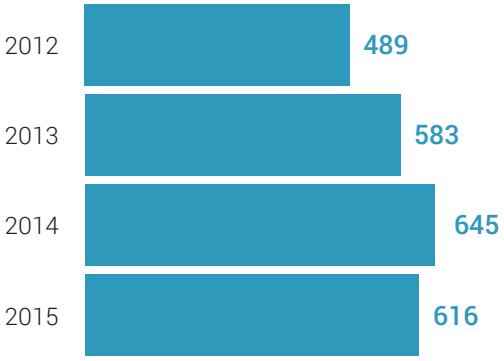
Bioscience-Related Venture Capital Investments by Segment
$ Millions
2012-2015



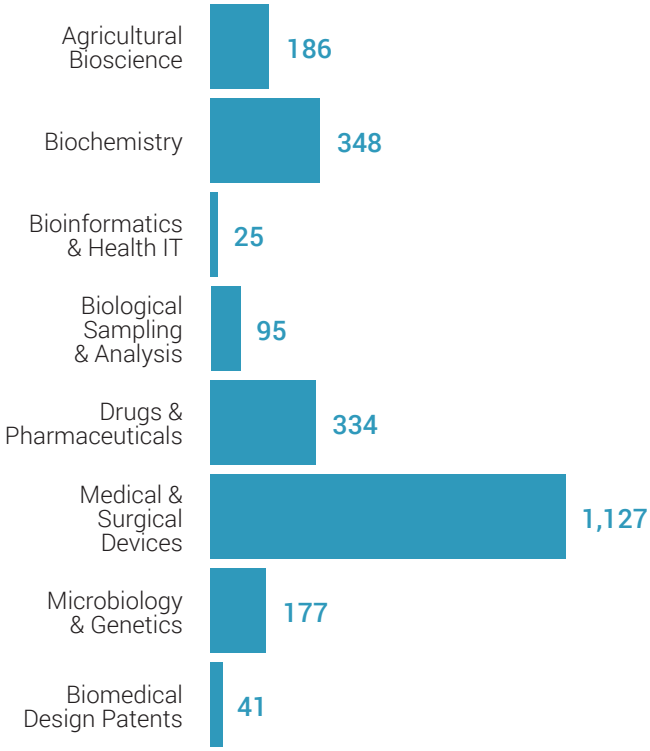
Michigan

Bioscience Patents in Michigan

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.

TECONOMY PARTNERS LLC
Innovating Tomorrow's Economic Landscape

Bio Biotechnology Innovation Organization