Michigan

Michigan's bioscience industry employed nearly 42,000 in 2012 while operating 1,760 business establishments across the state. The sizable state industry has seen its medical device and equipment subsector grow rapidly since 2007, increasing employment by 16 percent; and while agricultural feedstock and chemicals is modest in size, it too has added jobs since 2007 and is up by nearly 36 percent. Michigan's research universities conducted more than $1.2 billion in bioscience-related R&D in 2012 and the state has an above-average concentration of this key academic research relative to its population. The state's diverse strengths in medical device manufacturing and drugs and pharmaceuticals is evident in the focus areas of the 2,157 patents recently issued in bioscience-related technologies. Michigan bioscience firms have seen an increase in recent years in venture capital funding which totaled $505 million in the biosciences since 2009.

Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Michigan	United States	Quintile
Bioscience Industry, 2012			
Bioscience Industry Employment	41,892	1,619,746	II
Bioscience Industry Location Quotient	0.86	n/a	III
Bioscience Industry Establishments	1,760	73,088	II
Academic Bioscience R&D Expenditures, FY 2012			
Bioscience R&D ($ thousands)	$1,236,820	$38,139,876	II
Bioscience Share of Total R&D	59%	61%	III
Bioscience R&D Per Capita	$125	$119	II
NIH Funding, FY 2013			
Funding ($ thousands)	$575,889	$22,293,255	II
Funding Per Capita	$58	$70	II
Bioscience Venture Capital Investments, 2009–13 ($ millions)	$505.0	$49,401.7	II
Bioscience and Related Patents, 2009–13	2,157	100,238	II

State ranking figures for bioscience performance metrics are calculated as quintiles, where I = top quintile, III = middle quintile, and V = bottom quintile.

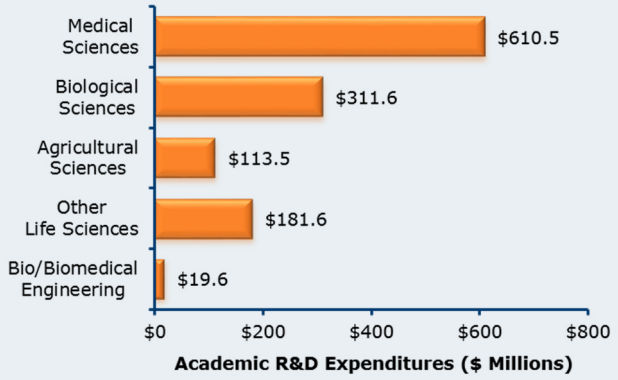
For source notes, see end of State Profile.

Industry Subsector	Michigan		United States	
	2012	2007–2012 Change	2012	2007–2012 Change
Agricultural Feedstock & Chemicals				
Establishments	29	58.5%	1,772	5.2%
Employment	963	35.7%	76,404	-1.0%
Location Quotient	0.42		n/a	
Direct-Effect Employment Multiplier	19.0		18.1	
Total Employment Impact	18,295		1,382,637	
Average Annual Wage	$65,399	30.1%	$75,828	14.2%
Bioscience-Related Distribution				
Establishments	967	0.8%	36,793	1.4%
Employment	11,441	-0.8%	442,016	-3.9%
Location Quotient	0.83		n/a	
Direct-Effect Employment Multiplier	2.8		2.7	
Total Employment Impact	32,070		1,199,015	
Average Annual Wage	$81,404	2.7%	$85,188	11.5%
Drugs and Pharmaceuticals				
Establishments	65	-1.5%	3,057	12.0%
Employment	7,940	-3.8%	284,331	-10.9%
Location Quotient	0.92		n/a	
Direct-Effect Employment Multiplier	9.9		9.9	
Total Employment Impact	78,695		2,673,265	
Average Annual Wage	$84,538	3.0%	$106,576	13.9%
Medical Devices and Equipment				
Establishments	240	18.2%	7,235	12.0%
Employment	11,100	16.1%	349,432	1.4%
Location Quotient	1.05		n/a	
Direct-Effect Employment Multiplier	3.6		3.9	
Total Employment Impact	39,637		1,318,459	
Average Annual Wage	$66,554	12.4%	$75,695	10.7%
Research, Testing, and Medical Laboratories				
Establishments	459	35.2%	24,231	31.0%
Employment	10,448	-16.6%	467,563	9.7%
Location Quotient	0.74		n/a	
Direct-Effect Employment Multiplier	3.0		2.7	
Total Employment Impact	31,365		1,284,196	
Average Annual Wage	$95,843	3.0%	$91,248	15.9%
Total Bioscience Industry				
Establishments	1,760	11.0%	73,088	11.4%
Employment	41,892	-1.6%	1,619,746	-0.4%
Location Quotient	0.86		n/a	
Direct-Effect Employment Multiplier	4.9		4.9	
Total Employment Impact	205,952		7,857,572	
Average Annual Wage	$81,296	3.1%	$88,202	12.8%
Total Private Sector				
Establishments	218,880	-12.3%	8,699,564	-0.5%
Employment	3,361,674	-5.7%	111,137,206	-3.1%
Average Annual Wage	$46,225	7.1%	$49,130	11.1%

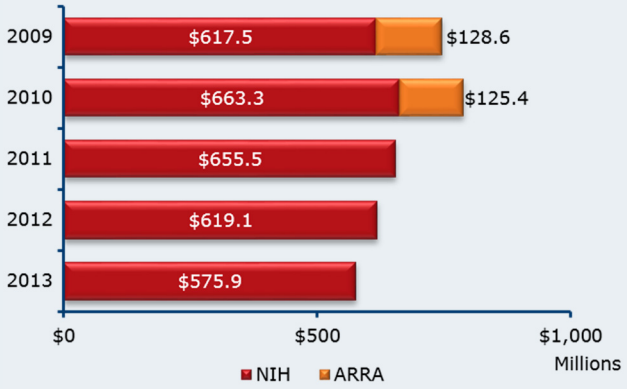
Note: U.S. employment metrics include Puerto Rico. Estimates of total impacts do not include Puerto Rico.

Bioscience Research in Michigan

Bioscience Academic R&D Expenditures, FY 2012



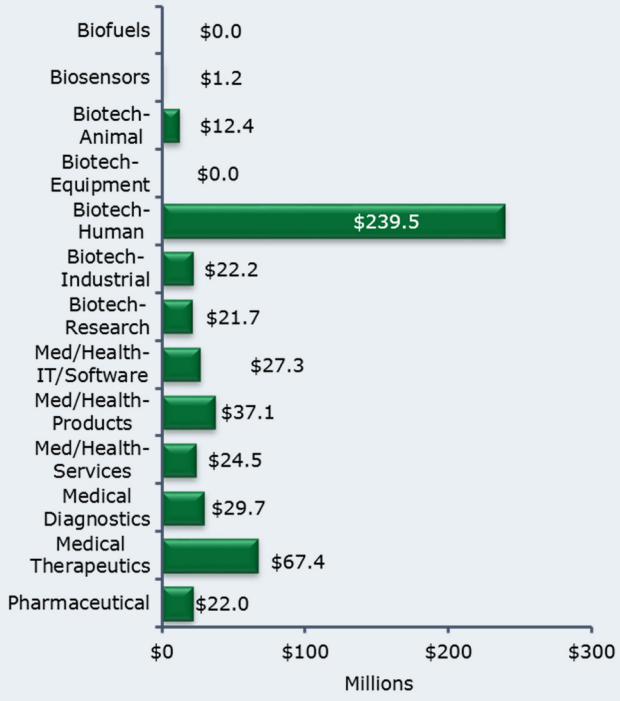
NIH Awards, 2009–2013



Bioscience Venture Capital in Michigan

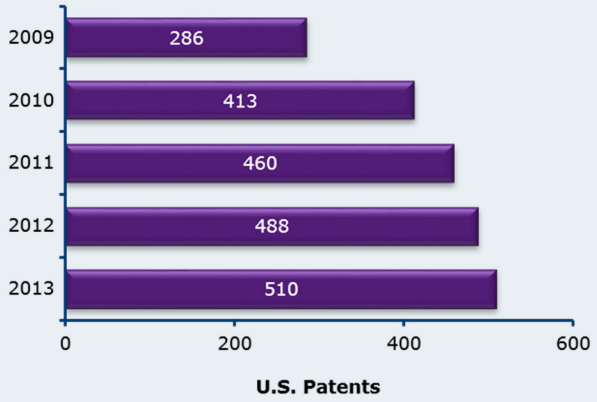
Bioscience-Related Venture Capital Investments, 2009–2013

Bioscience-Related Venture Capital Investments by Segment, 2009–2013

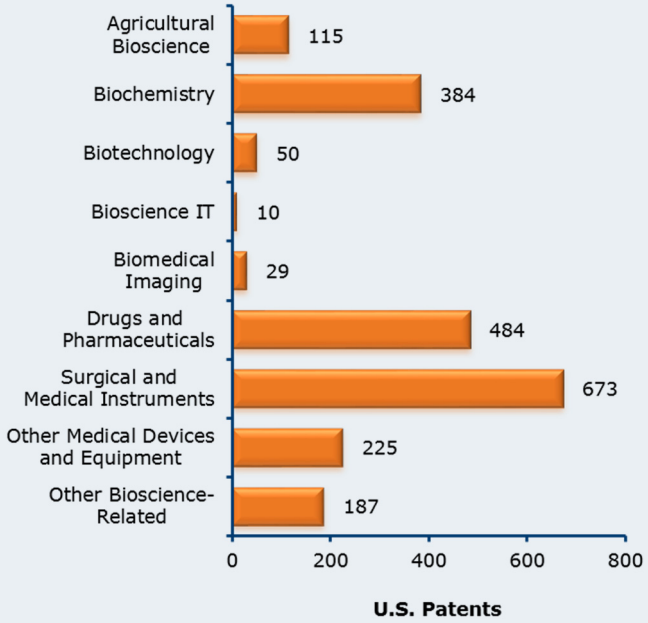


Bioscience Patents in Michigan

Bioscience-Related Patents, 2009–2013



Bioscience-Related Patents by Segment, 2009–2013



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), and NIH-managed funding for FY 2009 and FY 2010 from the American Recovery and Reinvestment Act (ARRA) website.

Venture Capital: Thomson Reuters Thomson ONE venture capital database.

Patents: U.S. Patent & Trademark Office data from Thomson Reuters Delphion Patent Analysis Database.

For a more detailed discussion of the data and methodology used, please see the Appendix to the full national report.