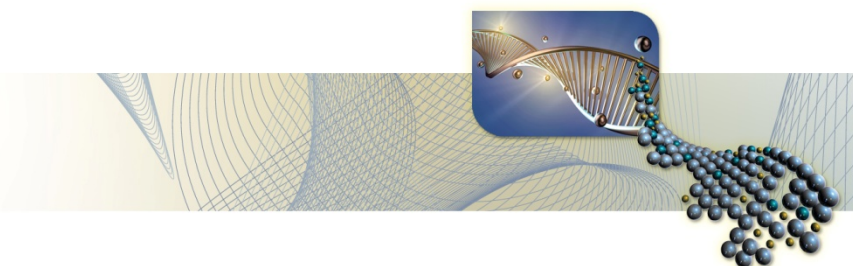


MICHIGAN



During the seven years ending in 2008, the research, testing and medical laboratories subsector in Michigan grew faster than the national average, as did employment in agricultural feedstock and chemicals. Total academic bioscience research expenditures in the State were \$951 million in 2008, mainly in medical and biological sciences. In the last six years, bioscience venture capital investments had risen steadily to a peak of \$138 million in 2008 before falling off as the national sector did in VC funding in 2008. The six-year cumulative venture funding total for Michigan was \$440 million. The largest share of venture investments was in pharmaceuticals, followed by human biotechnology. The 1,871 bioscience patents issued to Michigan inventors in the last six years were predominantly in drugs and pharmaceuticals, followed by biochemistry and surgical and medical instruments.

●●● Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metrics	Michigan	United States	Rank*
Bioscience Industry, 2008			
Total Bioscience Industry Employment, 2008	37,180	1,420,324	II
Bioscience Industry Location Quotient, 2008	0.86	n/a	III
Biosciences Industry Establishments, 2008	1,118	47,593	II
Academic R&D Expenditures, FY 2008			
Bioscience R&D (\$ thousands)	\$950,939	\$31,818,810	10
Bioscience Share of Total R&D	59.7%	61.3%	26
Bioscience R&D Per Capita	\$95.07	\$104.54	26
Change in Bioscience R&D, FY 2004–08	11.7%	22.3%	41
NIH Funding, FY 2009			
Total, Including ARRA Funds (\$ thousands)	\$723,301	\$25,837,590	11
Per Capita Funding	\$72.55	\$84.16	20
Change in Baseline Funding, FY 2004–09**	7.4%	-4.7%	14
Change in Total Funding, FY 2004–09	30.9%	14.6%	16
Clinical Trials, Initiated 2009	505	5,299	13
Higher Education Degrees in Bioscience Fields, AY 2008	5,548	161,811	8
Employment in Bioscience-related Occupations, 2008	17,240	717,510	15
Bioscience Venture Capital Investments, 2004–09 (\$ millions)	\$439.6	\$60,099	18
Bioscience and Related Patents, 2004–09	1,871	75,593	17

*State ranking figures for bioscience industry employment metrics are calculated as quintiles (I=Top Quintile; V=Bottom Quintile). All other metrics are ranked 1-52.

**Baseline Funding does not include American Recovery and Reinvestment Act (ARRA) funds for 2009.

For source notes, see end of State Profile.

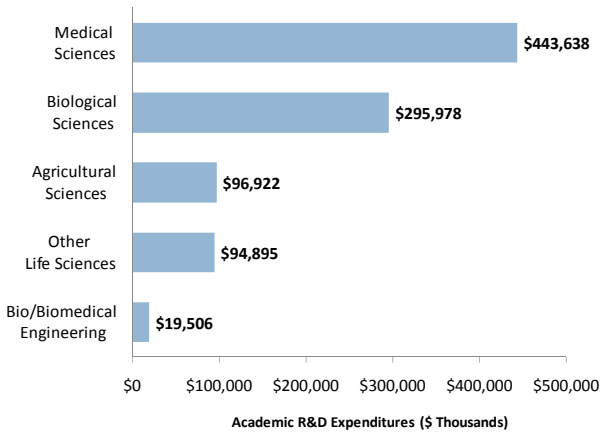
●●● Bioscience Industry Base, 2008

INDUSTRY SUBSECTOR	Michigan		United States	
	2008	2001-08 Change	2008	2001-08 Change
AGRICULTURAL FEEDSTOCK & CHEMICALS				
Establishments	35	-3.3%	2,440	16.0%
Employment	1,094	39.7%	114,793	1.9%
Location Quotient	0.31		n/a	
Direct-Effect Employment Multiplier	5.08		11.33	
Total Employment Impact	5,558		1,284,650	
Average Annual Wage	\$53,679		\$72,279	
DRUGS & PHARMACEUTICALS				
Establishments	64	12.3%	2,771	6.4%
Employment	8,209	-26.8%	311,882	2.3%
Location Quotient	0.87		n/a	
Direct-Effect Employment Multiplier	6.39		9.92	
Total Employment Impact	52,433		2,873,278	
Average Annual Wage	\$81,346		\$93,378	
MEDICAL DEVICES & EQUIPMENT				
Establishments	500	-13.9%	15,227	0.4%
Employment	12,339	-4.3%	435,509	2.0%
Location Quotient	0.93		n/a	
Direct-Effect Employment Multiplier	3.39		4.87	
Total Employment Impact	41,828		2,029,581	
Average Annual Wage	\$57,727		\$63,606	
RESEARCH, TESTING, & MEDICAL LABORATORIES				
Establishments	519	65.5%	27,154	57.7%
Employment	15,539	50.8%	558,140	46.1%
Location Quotient	0.92		n/a	
Direct-Effect Employment Multiplier	2.57		3.30	
Total Employment Impact	39,969		1,853,127	
Average Annual Wage	\$90,201		\$80,785	
TOTAL BIOSCIENCES INDUSTRY				
Establishments	1,118	13.2%	47,593	28.3%
Employment	37,180	5.6%	1,420,324	15.8%
Location Quotient	0.86		n/a	
Direct-Effect Employment Multiplier	3.76		5.82	
Total Employment Impact	139,789		8,040,636	
Average Annual Wage	\$76,394		\$77,595	
TOTAL PRIVATE SECTOR				
Establishments	251,344	-0.4%	8,860,956	13.8%
Employment	3,464,846	-9.7%	113,917,377	3.5%
Average Annual Wage	\$43,831		\$45,229	

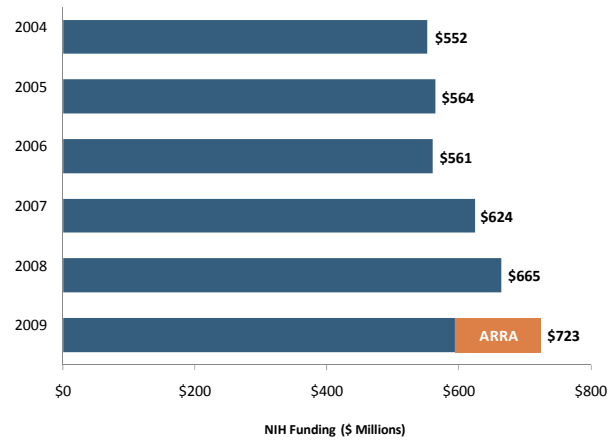
Note: U.S. employment metrics include Puerto Rico. Estimates of total employment impacts do not include Puerto Rico.

●●● Bioscience Performance Metrics

Bioscience Academic R&D Expenditures in Michigan, FY 2008

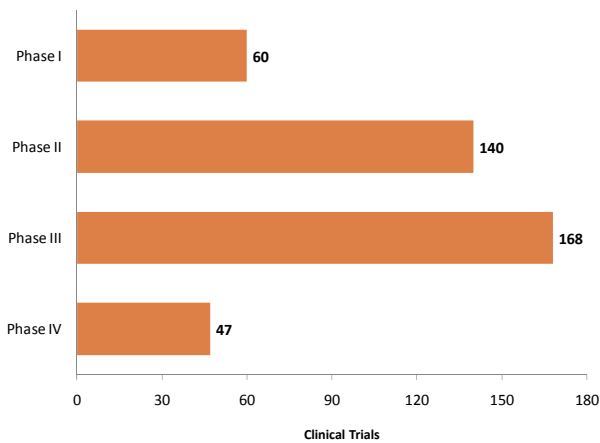


NIH Awards in Michigan, 2004–2009

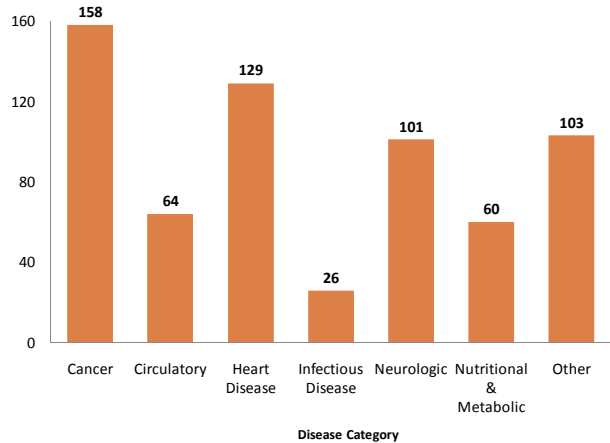


●●● Recent Clinical Trial Activities

Clinical Trials by Phase in Michigan, 2009

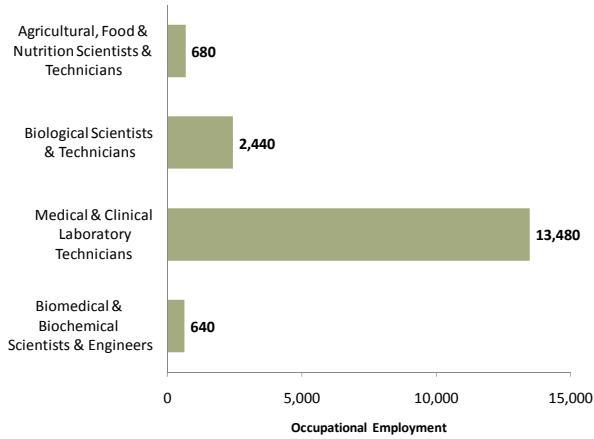


Clinical Trials by Major Disease Category in Michigan, 2009

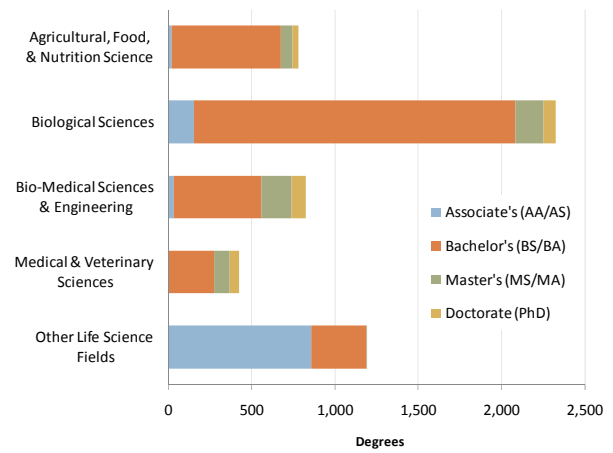


Bioscience Talent Base

Bioscience-related Occupational Employment in Michigan, 2008

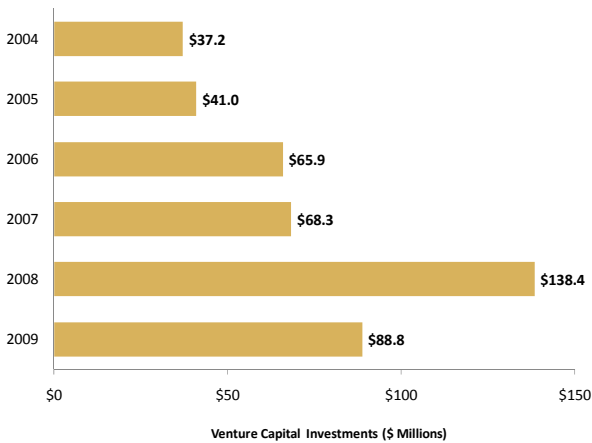


Bioscience-related Degrees in Michigan, AY 2008

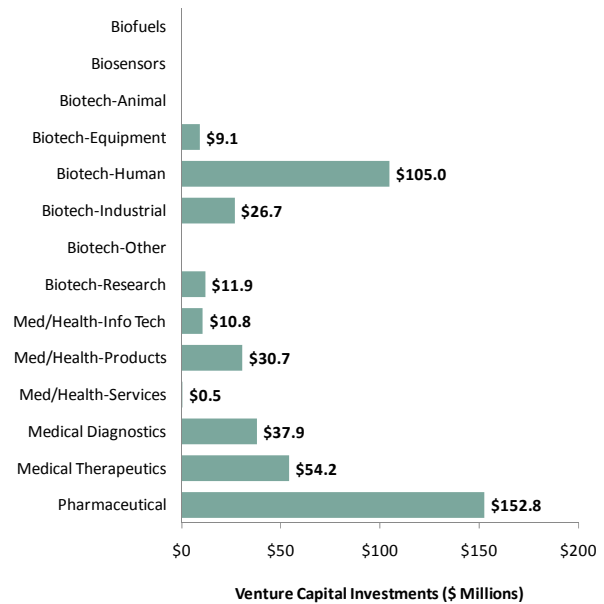


Bioscience Venture Capital

Bioscience-related Venture Capital Investments in Michigan, 2004–2009

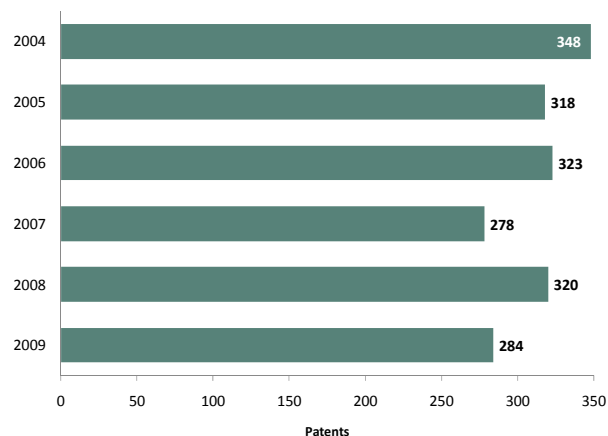


Bioscience-related Venture Capital Investments in Michigan by Segment, 2004–2009

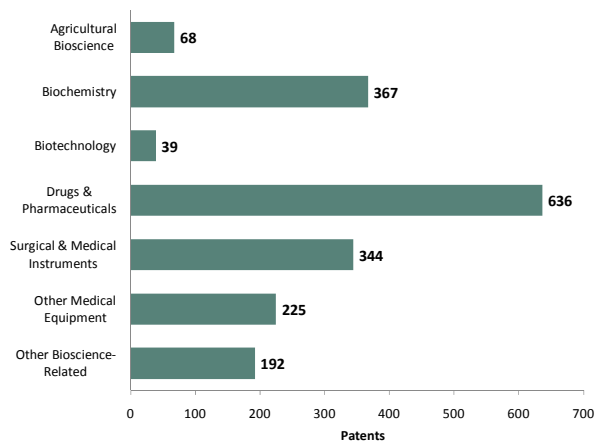


●●● Bioscience Patents

Bioscience-related Patents in Michigan, 2004–2009



Bioscience-related Patents by Classification Group in Michigan, 2004–2009



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Source Notes:

Employment, Establishment, and Wage Data: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) industry data provided by the Minnesota IMPLAN Group, 2001 and 2008.

Employment Multipliers: U.S. Bureau of Economic Analysis RIMS II Employment Multipliers, 2006 (most currently available).

Academic R&D Expenditures: National Science Foundation (NSF) Survey of Research and Development Expenditures at Universities and Colleges, 2004 and 2008.

NIH Funding: National Institutes of Health, Office of Extramural Research, Award Trends, Dollars Awarded by State, 2004 and 2009.

Clinical Trials: National Institutes of Health, Clinicaltrials.gov, trials that were initiated in 2009.

Higher Education Degrees: National Center for Educational Statistics, Integrated Postsecondary Education Data System (IPEDS), 2008.

Occupational Employment: U.S. Bureau of Labor Statistics, Occupational Employment Statistics (OES) survey data, 2008.

Venture Capital: Thomson Reuters' VentureXpert Database, 2004–2009, as of January 15, 2010.

Patents: U.S. Patent & Trademark Office data as available from the Thomson Reuters' Delphion Patent Analysis Database, 2004–2009, as of January 15, 2010.

For a more detailed discussion of the data and methodology used, please see the Appendix to the full national report. ©2010