

## Ohio



Ohio has a sizable and growing bioscience industry. State bioscience companies employed more than 48,000 in 2012 while operating 2,594 business establishments across the state. Bioscience industry employment has grown by 2.2 percent since 2007, a period which includes the deep national recession and early years of the recovery. Four of Ohio’s five major subsectors contributed to these overall job gains since 2007. The state is highly concentrated in two industry subsectors—agricultural feedstock and chemicals and bioscience-related distribution which have employment concentrations that are 8 percent and 5 percent greater than the national average, respectively. Ohio is among the top tier of states in key measures of bioscience R&D and innovation including in academic R&D, NIH research funding, and patenting. The state’s research universities had \$1.3 billion in bioscience-related R&D expenditures in 2012. Among the 3,912 bioscience patents issued since 2009 to Ohio inventors, key technology focus areas include surgical and medical instruments, drugs and pharmaceuticals, and biochemistry.

### Bioscience Performance Metrics

#### Summary of State Performance in Selected Bioscience-related Metrics

Metric	Ohio	United States	Quintile
<b>Bioscience Industry, 2012</b>			
Bioscience Industry Employment	48,294	1,619,746	II
Bioscience Industry Location Quotient	0.76	n/a	III
Bioscience Industry Establishments	2,594	73,088	I
<b>Academic Bioscience R&amp;D Expenditures, FY 2012</b>			
Bioscience R&D (\$ thousands)	\$1,315,880	\$38,139,876	I
Bioscience Share of Total R&D	65%	61%	II
Bioscience R&D Per Capita	\$114	\$119	III
<b>NIH Funding, FY 2013</b>			
Funding (\$ thousands)	\$685,297	\$22,293,255	I
Funding Per Capita	\$59	\$70	II
<b>Bioscience Venture Capital Investments, 2009–13 (\$ millions)</b>	\$623.7	\$49,401.7	II
<b>Bioscience and Related Patents, 2009–13</b>	3,912	100,238	I

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

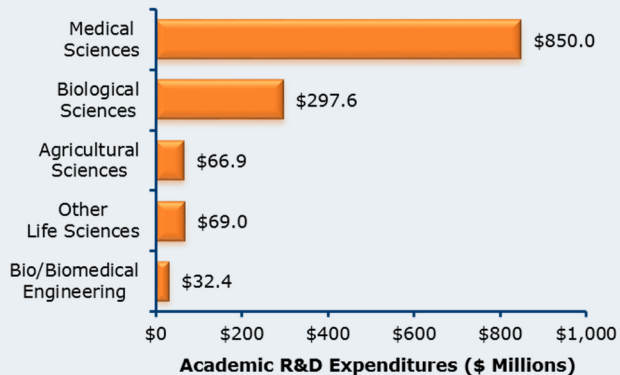
For source notes, see end of State Profile.

Industry Subsector	Ohio		United States	
	2012	2007-2012 Change	2012	2007-2012 Change
<b>Agricultural Feedstock &amp; Chemicals</b>				
Establishments	66	44.4%	1,772	5.2%
Employment	3,204	10.6%	76,404	-1.0%
Location Quotient	1.08		n/a	
Direct-Effect Employment Multiplier	20.8		18.1	
Total Employment Impact	66,684		1,382,637	
Average Annual Wage	\$71,643	-0.7%	\$75,828	14.2%
<b>Bioscience-Related Distribution</b>				
Establishments	1,424	-6.1%	36,793	1.4%
Employment	17,546	-9.4%	442,016	-3.9%
Location Quotient	1.05		n/a	
Direct-Effect Employment Multiplier	2.8		2.7	
Total Employment Impact	49,570		1,199,015	
Average Annual Wage	\$74,419	4.2%	\$85,188	11.5%
<b>Drugs and Pharmaceuticals</b>				
Establishments	44	7.3%	3,057	12.0%
Employment	5,579	10.0%	284,331	-10.9%
Location Quotient	0.50		n/a	
Direct-Effect Employment Multiplier	10.8		9.9	
Total Employment Impact	60,002		2,673,265	
Average Annual Wage	\$72,882	17.7%	\$106,576	13.9%
<b>Medical Devices and Equipment</b>				
Establishments	227	8.6%	7,235	12.0%
Employment	9,120	10.6%	349,432	1.4%
Location Quotient	0.67		n/a	
Direct-Effect Employment Multiplier	3.5		3.9	
Total Employment Impact	31,854		1,318,459	
Average Annual Wage	\$53,814	11.9%	\$75,695	10.7%
<b>Research, Testing, and Medical Laboratories</b>				
Establishments	832	21.3%	24,231	31.0%
Employment	12,845	9.7%	467,563	9.7%
Location Quotient	0.70		n/a	
Direct-Effect Employment Multiplier	2.7		2.7	
Total Employment Impact	34,917		1,284,196	
Average Annual Wage	\$69,434	13.0%	\$91,248	15.9%
<b>Total Bioscience Industry</b>				
Establishments	2,594	3.8%	73,088	11.4%
Employment	48,294	2.2%	1,619,746	-0.4%
Location Quotient	0.76		n/a	
Direct-Effect Employment Multiplier	4.9		4.9	
Total Employment Impact	237,243		7,857,572	
Average Annual Wage	\$68,840	7.7%	\$88,202	12.8%
<b>Total Private Sector</b>				
Establishments	271,921	-1.8%	8,699,564	-0.5%
Employment	4,334,223	-4.8%	111,137,206	-3.1%
Average Annual Wage	\$43,618	10.6%	\$49,130	11.1%

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

## Bioscience Research in Ohio

**Bioscience Academic R&D Expenditures, FY 2012**

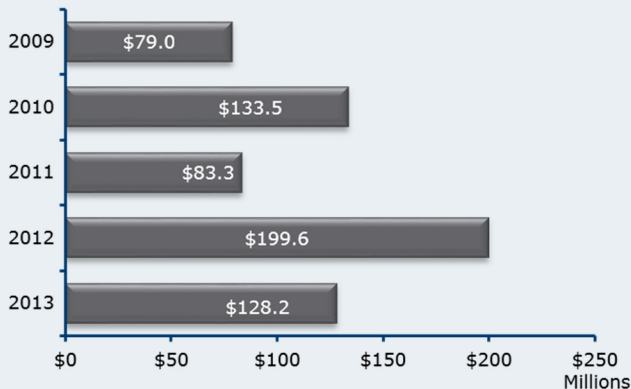


**NIH Awards, 2009–2013**

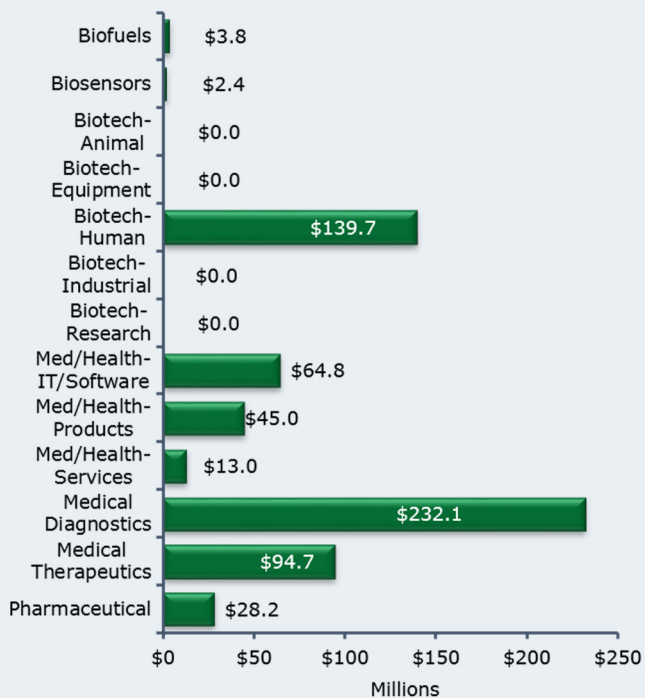


## Bioscience Venture Capital in Ohio

**Bioscience-Related Venture Capital Investments, 2009–2013**

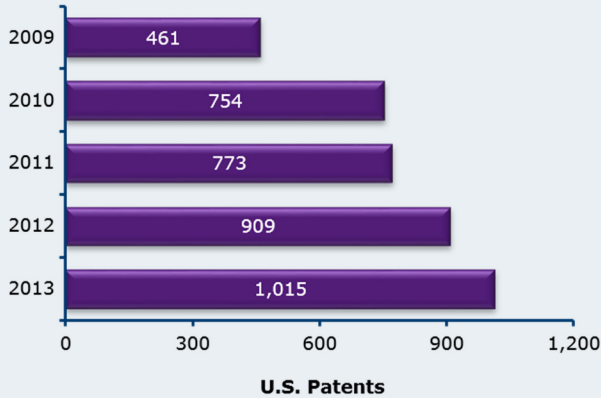


**Bioscience-Related Venture Capital Investments by Segment, 2009–2013**

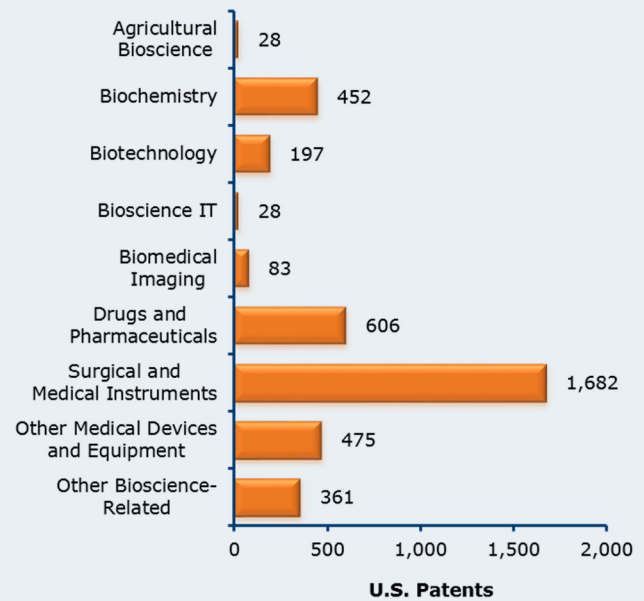


## Bioscience Patents in Ohio

### 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.