

The Midwest is seeing steady, strong growth in the bioscience industry, which continues to generate new, high-wage jobs. The Midwest's concentration of bioscience jobs is eight percent higher than the national average.

Wages for the region's bioscience workers are substantially greater, on average, compared

with those of their regional counterparts in the overall private sector. From 2012 to 2014, the average annual wage for bioscience workers in the Midwest increased 5.2 percent.

The MGA region makes up 24.5 percent of total bioscience employment in the United States, with specialized employment concentrations in three of five bioscience subsectors:

North Dakota's research universities conducted almost \$110 million in bioscience-related research and development in 2014, which translated into a highly concentrated research base relative to the state's population.

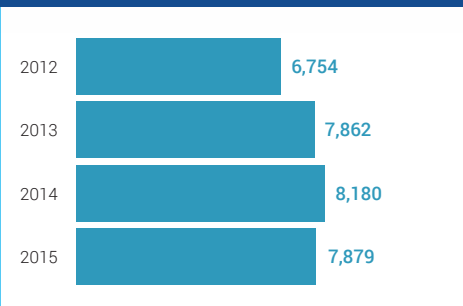
Bioscience Industry Base 2012-2014^{1, 2}

Industry Subsector	MGA States		United States	
	2014	2012-2014 Change	2014	2012-2014 Change
Agricultural Feedstock and Chemicals				
Establishments	665	0.1%	1,811	2.2%
Employment	35,011	0.5%	77,545	1.5%
Location Quotient	1.99		n/a	
Average Annual Wage	\$78,694	8.1%	\$80,640	6.3%
Bioscience-Related Distribution				
Establishments	10,705	-0.7%	37,833	2.8%
Employment	124,329	4.2%	452,325	2.3%
Location Quotient	1.21		n/a	
Average Annual Wage	\$80,369	2.6%	\$90,458	6.2%
Drugs and Pharmaceuticals				
Establishments	642	15.3%	3,301	8.0%
Employment	69,631	7.3%	293,353	3.2%
Location Quotient	1.05		n/a	
Average Annual Wage	\$116,068	9.7%	\$117,524	10.3%
Medical Devices and Equipment				
Establishments	1,860	5.0%	7,636	5.5%
Employment	96,773	-2.6%	349,045	-0.1%
Location Quotient	1.22		n/a	
Average Annual Wage	\$79,488	3.7%	\$79,537	5.1%
Research, Testing, and Medical Laboratories				
Establishments	4,558	8.1%	26,702	10.2%
Employment	79,079	2.7%	483,412	3.4%
Location Quotient	0.72		n/a	
Average Annual Wage	\$81,693	3.0%	\$97,485	6.8%
Total Bioscience Industry				
Establishments	18,430	2.4%	77,283	5.7%
Employment	404,823	2.4%	1,655,680	2.2%
Location Quotient	1.08		n/a	
Average Annual Wage	\$86,412	5.2%	\$94,543	7.2%
Total Private Sector				
Establishments	1,826,132	2.5%	8,937,672	2.7%
Employment	26,337,566	3.4%	116,018,300	4.4%
Average Annual Wage	\$47,191	4.2%	\$51,148	4.3%

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

Nebraska has grown its bioscience industry employment base by approximately 3 percent between 2012 and 2015, with job gains coming from within the agricultural feedstock and chemicals and bioscience-related distribution subsectors. Nebraska's bioscience jobs are 42 percent more concentrated across the state's economy relative to the national average.

Bioscience-Related U.S. Patents 2012-2015³

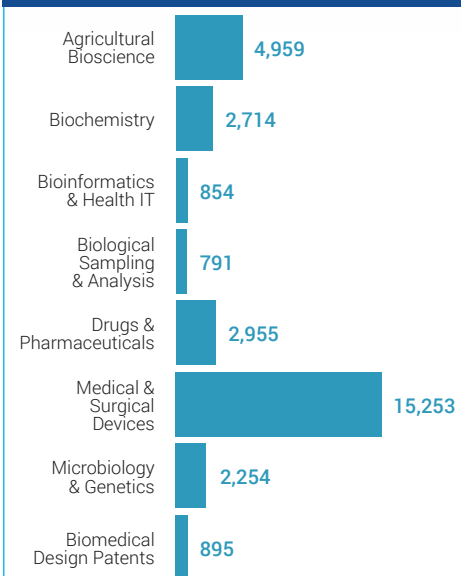


Wisconsin is growing a specialized Wisconsin concentration in medical device manufacturing. A 40 percent greater concentration in Wisconsin relative to the national average has made the state a hub for medical device manufacturing. GE Healthcare dominates the landscape with 7,000 employees in Dane, Waukesha, Washington, Ozaukee, and Milwaukee counties⁴. At the western edge of the state, Phillips Plastics (Hudson, WI; www.phillipsplastics.com), the state's largest medical device-related supplier, believes that the Milwaukee area is the core of its future growth.

⁴ <http://www.qmed.com/mpmn/article/badger-states-southeast-boasts-robust-medical-device-sector>

agricultural feedstock and chemicals, medical device and equipment, and bioscience-related distribution. In fact, medical devices and equipment employment is growing at a pace more than twice as fast as the national average, and bioscience-related distribution is growing just under two times.

Bioscience-Related U.S. Patents by Segment 2012-2015³



Illinois ranks as one of the top states for bioscience companies, having employed almost 81,000 individuals at 3,744 business establishments as of 2014 – the most among Midwestern states by a significant margin. Illinois is also a Midwestern leader in both venture capital (\$1.14 billion from 2012 through 2015) and NIH (\$723 million in FY 2015) funding.

Total National Institutes of Health (NIH) funding within the region for 2015 topped \$3.86 billion. Between 2012 and 2015, over 15,250 patents were issued related to surgical and medical instruments, with institutions and companies in the Midwest awarded more than 7,875 patents in 2015 alone.

Michigan's world-renowned universities, defined by its University Research Corridor, receive almost \$1.2 billion alone in federal research and development funding for bioscience research – 4th among the major U.S. research clusters⁵.

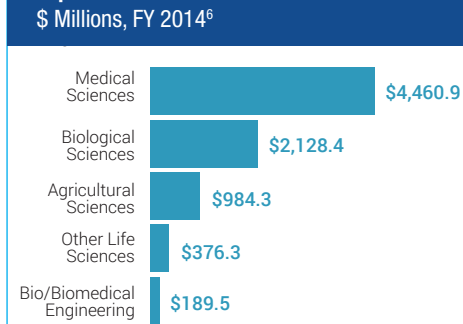
⁵ [Mich BIO Webpage](#)

Between 2012 and 2015, Midwestern states raised over \$4.2 billion dollars of bioscience-related venture capital investments, almost 28 percent of which went to support human biotechnology. Medical therapeutics saw investments of \$974 million.

Academic research and development expenditures in biosciences exceeded \$8.1 billion dollars, with medical sciences accounting for more than half and biological sciences accounting for another quarter of the total.

In today's global economy, city and state borders are less relevant, and companies instead focus

Bioscience Academic R&D Expenditures \$ Millions, FY 2014⁶



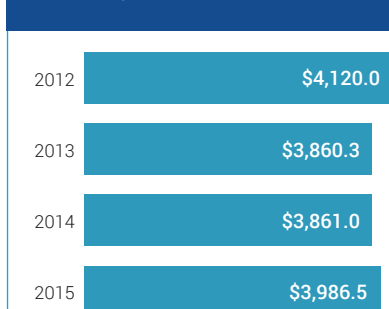
Iowa is a national leader in agricultural biosciences, accounting for 10 percent of U.S. employment in this field and creating a very high and specialized concentration relative to the national average. As of 2014, Iowa has the most agricultural feedstock and chemical establishments in the nation, with 127 companies employing more than 7,700 individuals.

Missouri's research universities are especially focused in the biosciences relative to other fields, with nearly \$845 million in bioscience academic research and development in 2014 accounting for 83 percent of all academic research compared with 61 percent for the national average.

on the workforce, infrastructure, and educational institutions of a region when choosing to locate their company. With first-rate educational systems, favorable business climate, high quality of life, low cost of living, major transportation hubs, low crime rates, and citizens known for their work ethic, the Midwest has been and continues to be the region of choice for companies and their employees to call home.

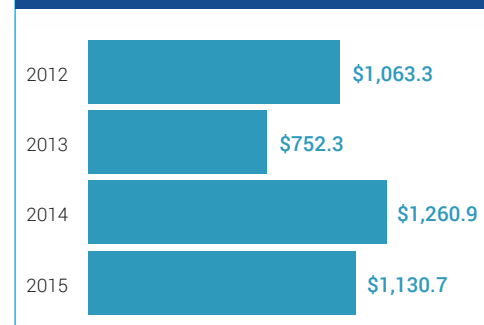
South Dakota's bioscience companies have increased in both number of establishments and employment by approximately 12 percent each year between 2012 and 2015.

NIH Awards \$ Millions, FY 2012-2015⁷



Ohio is among the top tier of states in key measures of bioscience research, development, and innovation, including in academic research and development, NIH research funding, and patenting. The state's research universities had \$1.3 billion in bioscience-related research and development expenditures in 2014.

Bioscience-Related Capital Investments \$ Millions, 2012-2015⁸



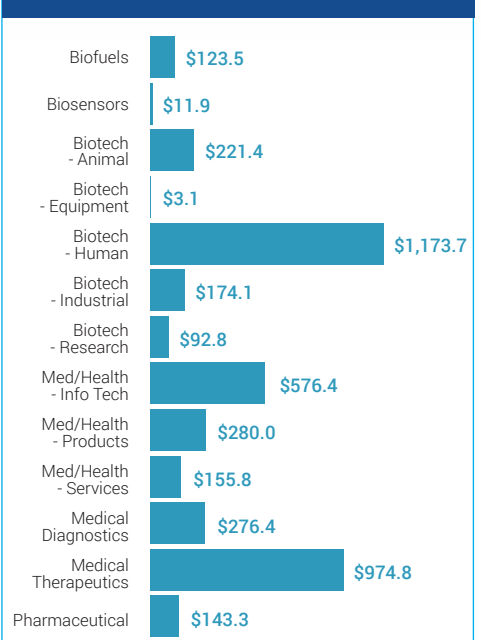
Bioscience firms in Kansas received \$93.8 million in venture capital investments for animal biotechnologies between 2012 and 2015, trailing only California⁹.

⁹ [BIO Kansas Webpage](#)

- 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.
- Thomson Reuters Thomson Innovation patent analysis database.
- National Science Foundation (NSF) Higher Education Research and Development (HERD) Survey.
- National Institutes of Health, NIH Awards by Location & Organization (summary information within RePORT database).
- Thomson Reuters Thomson ONE venture capital database.

Minnesota is a national leader in medical device and equipment manufacturing, which accounts for more than half the state's bioscience jobs. The state is almost four times more concentrated relative to the national average. Minnesota was also tops among Midwestern states in this market segment, with more than 5,200 medical and surgical device patents awarded between 2012 and 2015.

Capital Investments by Segment \$ Millions, 2012-2015⁸



Indiana's life sciences sector has a \$53 billion impact on the state's economy. With \$9.6 billion in exports, Indiana is the second largest medical exporter in the country. The health science industry directly employs more than 56,000 people and pays an average annual wage of \$98,934, over double the average private sector annual wage¹⁰.

¹⁰ [BioCrossroads Webpage](#)

Strong Work Ethic,
Entrepreneurial,
Innovative,
Bioscience,
Energy,
Manufacturing,
Transportation Crossroads,
Sensational Standard of Living,
Quality Education,
Skilled Workforce

The Midwestern Governors Association (MGA) is a nonprofit, bipartisan organization that brings together the governors of Midwestern states to work cooperatively on public policy issues of significance to the region.

For more information on the MGA, visit www.midwesterngovernors.org

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Midwestern Governors Association



America's
Smartland:
THINKING REGIONALLY
IN THE BIOECONOMY

Working as a dynamic whole, the MGA region's unique assets are greater than the sum of their parts. The Midwest is the crossroads for much of the nation's economic activity, with a robust freight industry and a rich network of rails, rivers, roads and airports second to none. Here you will find a world-class work ethic and a welcoming climate for business and job growth, as reflected by our diverse mix of industries. Add to this: vibrant cities and towns—both urban and rural—high-quality schools, cutting-edge universities and research institutions, easy access to breathtaking outdoor recreation in all four seasons, cultural amenities that rival any in the world, and you begin to understand how this region became both bread-basket and manufacturer to the world. This enviable standard of living and economic resilience is matched by an uncommon decency among people here, making this an exceptional place to live, raise a family, get an education, start a business, or grow an industry. Beyond its physical and intellectual assets, the Midwest has a cultural tradition of cooperation and a legacy of innovation—based on its pioneer and agricultural heritage—that makes it a natural home for new cutting-edge technologies, whether in advanced manufacturing, the biosciences or energy production.

