



North Dakota's bioscience industry is modest in size but has grown in recent years. State bioscience firms have increased their employment base by 2.4 percent since 2014 to reach 3,768 industry jobs in 2016 in 506 state establishments. North Dakota has a specialized employment concentration in two of the industry's major subsectors—agricultural feedstock and industrial biosciences and bioscience-related distribution. The state has a strong concentration relative to its size in bioscience-related academic R&D where the nearly \$118 million in research expenditures in 2016 translate to an R&D per capita figure well above the national average.

## Bioscience Performance Metrics

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

Metric	North Dakota	United States	Quintile
<b>Bioscience Industry, 2016</b>			
Bioscience Industry Employment	3,768	1,743,639	V
Bioscience Industry Location Quotient	0.76	n/a	III
Bioscience Industry Establishments	506	85,702	IV
<b>Academic Bioscience R&amp;D Expenditures, FY 2016</b>			
Bioscience R&D (\$ thousands)	\$117,692	\$41,972,205	IV
Bioscience Share of Total R&D	53%	62%	IV
Bioscience R&D Per Capita	\$156	\$130	II
<b>NIH Funding, FY 2017</b>			
Funding (\$ thousands)	\$18,386	\$26,150,485	V
Funding Per Capita	\$24	\$80	V
<b>Bioscience Venture Capital Investments, 2014-17 (\$ millions)</b>	\$0.16	\$66,168.62	V
<b>Bioscience and Related Patents, 2014-17</b>	71	102,862	V

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	North Dakota		United States	
	2016	2014-2016 Change	2016	2014-2016 Change
<b>Agricultural Feedstock and Industrial Biosciences</b>				
Establishments	10	-9.1%	1,709	-3.2%
Employment	454	-9.8%	68,027	-1.2%
Location Quotient	2.33		n/a	
Direct-Effect Employment Multiplier	9.63			
Total Employment Impact	4,370			
Average Annual Wage	\$71,800	6.7%	\$80,961	2.7%
<b>Bioscience-Related Distribution</b>				
Establishments	409	6.8%	39,149	3.8%
Employment	2,576	3.1%	469,640	3.7%
Location Quotient	1.92		n/a	
Direct-Effect Employment Multiplier	1.93			
Total Employment Impact	4,979			
Average Annual Wage	\$69,379	5.8%	\$93,677	2.7%
<b>Drugs and Pharmaceuticals</b>				
Establishments	3	50.0%	3,754	13.7%
Employment	90	241.9%	299,113	2.0%
Location Quotient	0.10		n/a	
Direct-Effect Employment Multiplier	2.83			
Total Employment Impact	254			
Average Annual Wage	\$58,670	-8.4%	\$113,815	-3.2%
<b>Medical Devices and Equipment</b>				
Establishments	6	-4.0%	8,083	5.9%
Employment	142	3.0%	359,293	2.9%
Location Quotient	0.14		n/a	
Direct-Effect Employment Multiplier	2.28			
Total Employment Impact	323			
Average Annual Wage	\$56,656	9.1%	\$84,746	6.5%
<b>Research, Testing and Medical Laboratories</b>				
Establishments	78	-4.0%	33,007	13.1%
Employment	507	-1.7%	547,566	8.2%
Location Quotient	0.32		n/a	
Direct-Effect Employment Multiplier	1.85			
Total Employment Impact	938			
Average Annual Wage	\$56,059	-7.8%	\$106,942	5.5%
<b>Total Bioscience Industry</b>				
Establishments	506	4.7%	85,702	7.7%
Employment	3,768	2.4%	1,743,639	4.4%
Location Quotient	0.76		n/a	
Direct-Effect Employment Multiplier	2.88			
Total Employment Impact	10,863			
Average Annual Wage	\$67,146	3.9%	\$98,961	3.1%
<b>Total Private Sector</b>				
Establishments	30,060	1.8%	9,243,034	3.4%
Employment	345,712	-8.1%	120,884,570	4.2%
Average Annual Wage	\$49,306	-5.3%	\$53,354	4.3%

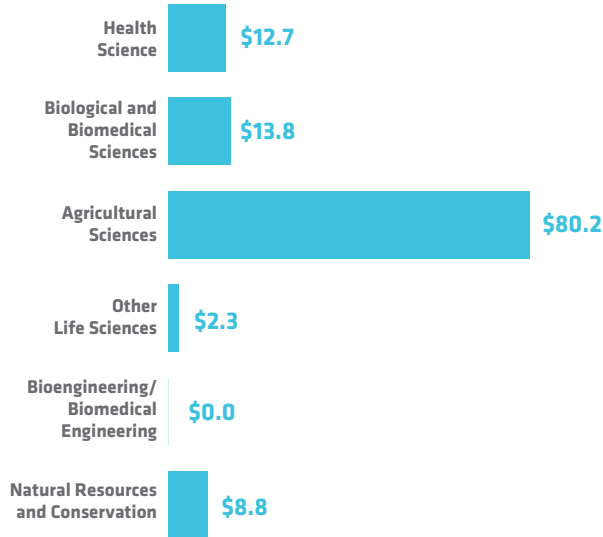
Note: U.S. employment metrics include Puerto Rico.

## Bioscience Research in North Dakota

### Bioscience Academic R&D Expenditures

\$ Millions

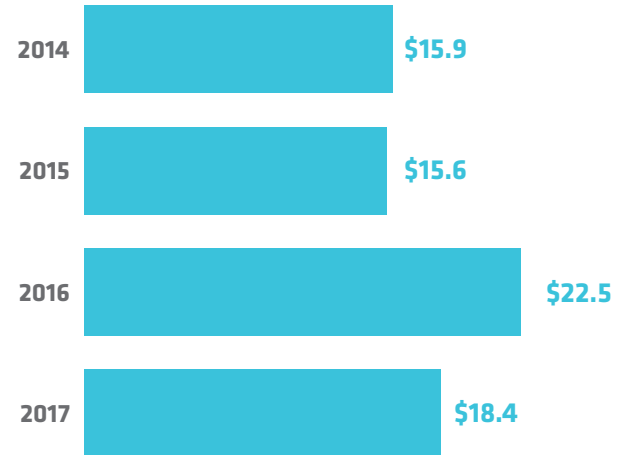
FY 2016



### NIH Awards

\$ Millions

FY 2014-2017

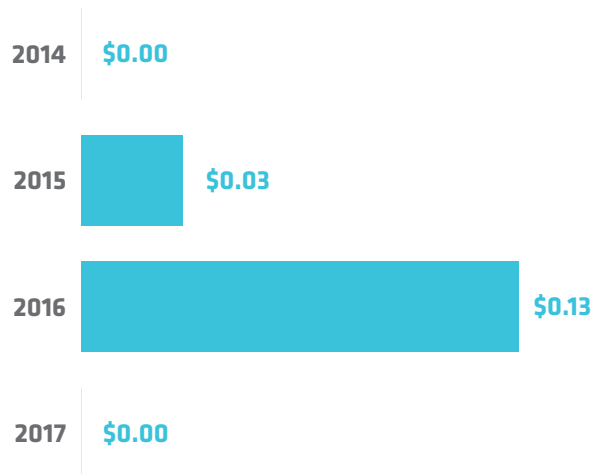


## Bioscience Venture Capital in North Dakota

### Bioscience-Related Venture Capital Investments

\$ Millions

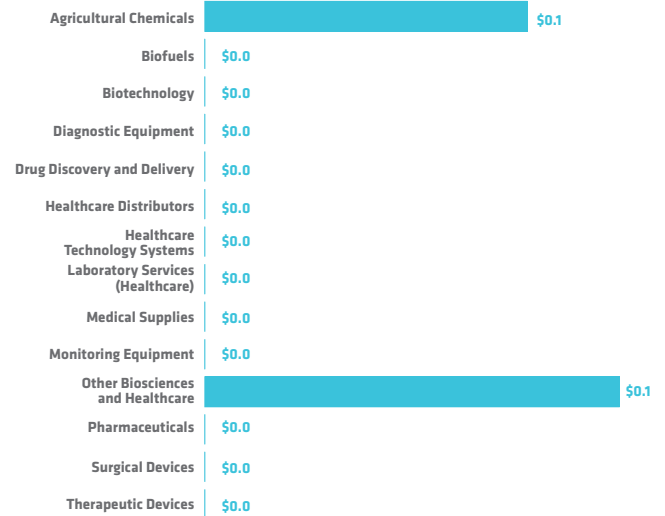
2014-2017



### Bioscience-Related Venture Capital Investments by Segment

\$ Millions

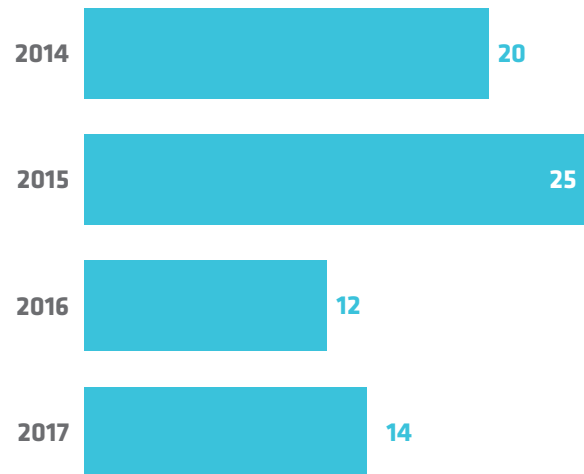
2014-2017



## Bioscience Patents in North Dakota

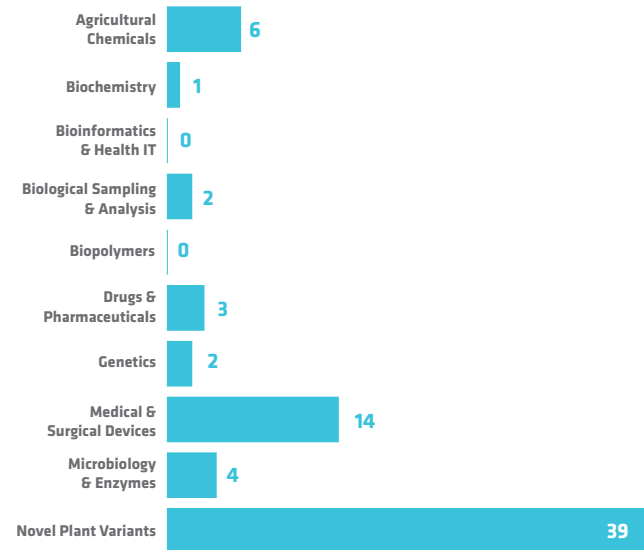
Bioscience-Related U.S. Patents

2014-2017



Bioscience-Related U.S. Patents by Segment

2014-2017



### Source Notes

**Employment, Establishments and Wages:** U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW), enhanced file from IMPLAN.

**Employment Multipliers:** IMPLAN 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:** PitchBook Data, Inc.

**Patents:** U.S. Patent & Trademark Office data from Clarivate Analytics' Derwent Innovation patent analysis database. For a more detailed discussion of the data and methodology used, please see the Appendix to the full national report.