



TEconomy/BIO

**The Value of Bioscience Innovation in Growing Jobs and Improving Quality of Life 2016**

**Virginia**

Virginia’s bioscience industry is sizable with just over 26,000 industry jobs that spanned 1,624 business establishments in 2014. The state industry saw a 2 percent decline in bioscience industry jobs from 2012 to 2014, though it did add jobs in two of the five industry subsectors—medical devices and bioscience-related distribution. Virginia’s job gains in medical devices were especially strong at nearly 9 percent while nationally hiring was flat during this period. This is a concentrated area of innovation in the state as nearly half of state-invented patents since 2012 were in medical and surgical devices. Virginia’s research institutions received more than \$322 million in NIH funding awards in 2015. The state’s bioscience companies received \$713 million in venture capital investments from 2012 through 2015.

**Bioscience Performance Metrics**

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Virginia	United States	Quintile
<b>Bioscience Industry, 2014</b>			
Bioscience Industry Employment	26,027	1,655,680	III
Bioscience Industry Location Quotient	0.62	n/a	IV
Bioscience Industry Establishments	1,624	77,283	II
<b>Academic Bioscience R&amp;D Expenditures, FY 2014</b>			
Bioscience R&D (\$ thousands)	\$693,952	\$38,873,926	II
Bioscience Share of Total R&D	54%	61%	IV
Bioscience R&D Per Capita	\$83	\$122	IV
<b>NIH Funding, FY 2015</b>			
Funding (\$ thousands)	\$322,543	\$22,869,746	II
Funding Per Capita	\$38	\$71	III
<b>Bioscience Venture Capital Investments, 2012–15 (\$ millions)</b>	\$713.1	\$48,742.10	II
<b>Bioscience and Related Patents, 2012–15</b>	1,449	101,026	III

State ranking figures for bioscience performance metrics are calculated as quintiles, where:  
 top quintile – I II III IV V – bottom quintile

For source notes, see end of State Profile.



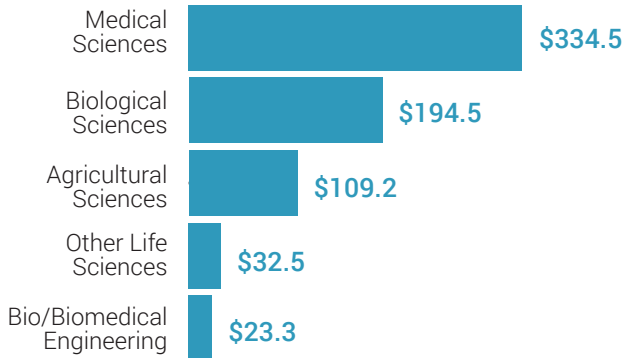
Industry Subsector	Virginia		United States	
	2014	2012–2014 Change	2014	2012–2014 Change
<b>Agricultural Feedstock and Chemicals</b>				
Establishments	25	6.2%	1,811	2.2%
Employment	1,817	-2.5%	77,545	1.5%
Location Quotient	0.92		n/a	
Direct-Effect Employment Multiplier	14.1		18.4	
Total Employment Impact	25,539		1,432,125	
Average Annual Wage	\$88,746	5.1%	\$80,640	6.3%
<b>Bioscience-Related Distribution</b>				
Establishments	652	3.5%	37,833	2.8%
Employment	7,097	2.0%	452,325	2.3%
Location Quotient	0.61		n/a	
Direct-Effect Employment Multiplier	2.9		3.0	
Total Employment Impact	20,699		1,358,820	
Average Annual Wage	\$78,011	7.4%	\$90,458	6.2%
<b>Drugs and Pharmaceuticals</b>				
Establishments	51	-5.6%	3,301	8.0%
Employment	2,631	-15.1%	293,353	3.2%
Location Quotient	0.35		n/a	
Direct-Effect Employment Multiplier	10.1		11.0	
Total Employment Impact	26,455		3,242,627	
Average Annual Wage	\$101,736	18.9%	\$117,524	10.3%
<b>Medical Devices and Equipment</b>				
Establishments	140	0.0%	7,636	5.5%
Employment	2,161	8.6%	349,045	-0.1%
Location Quotient	0.24		n/a	
Direct-Effect Employment Multiplier	4.3		4.6	
Total Employment Impact	9,330		1,596,802	
Average Annual Wage	\$68,928	4.9%	\$79,537	5.1%
<b>Research, Testing, and Medical Laboratories</b>				
Establishments	757	25.3%	26,702	10.2%
Employment	12,321	-2.5%	483,412	3.4%
Location Quotient	1.00		n/a	
Direct-Effect Employment Multiplier	2.9		3.1	
Total Employment Impact	35,933		1,554,719	
Average Annual Wage	\$78,783	0.9%	\$97,485	6.8%
<b>Total Bioscience Industry</b>				
Establishments	1,624	11.9%	77,283	5.7%
Employment	26,027	-2.0%	1,655,680	2.2%
Location Quotient	0.62		n/a	
Direct-Effect Employment Multiplier	4.7		5.5	
Total Employment Impact	122,574		9,185,094	
Average Annual Wage	\$80,770	4.8%	\$94,543	7.2%
<b>Total Private Sector</b>				
Establishments	228,195	0.3%	8,937,672	2.7%
Employment	2,964,308	1.4%	116,018,300	4.4%
Average Annual Wage	\$52,578	2.3%	\$51,148	4.3%

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

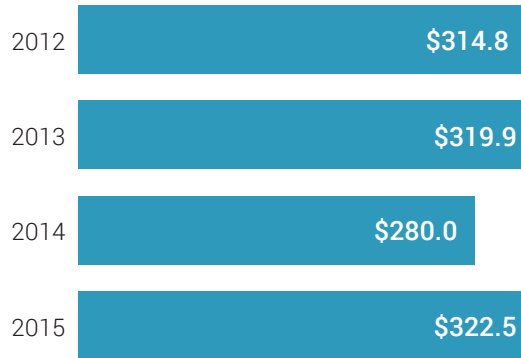


### Bioscience Research in Virginia

Bioscience Academic R&D Expenditures  
\$ Millions  
FY 2014

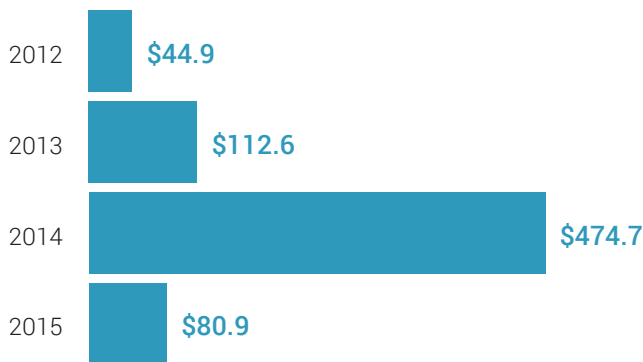


NIH Awards  
\$ Millions  
FY 2012-2015

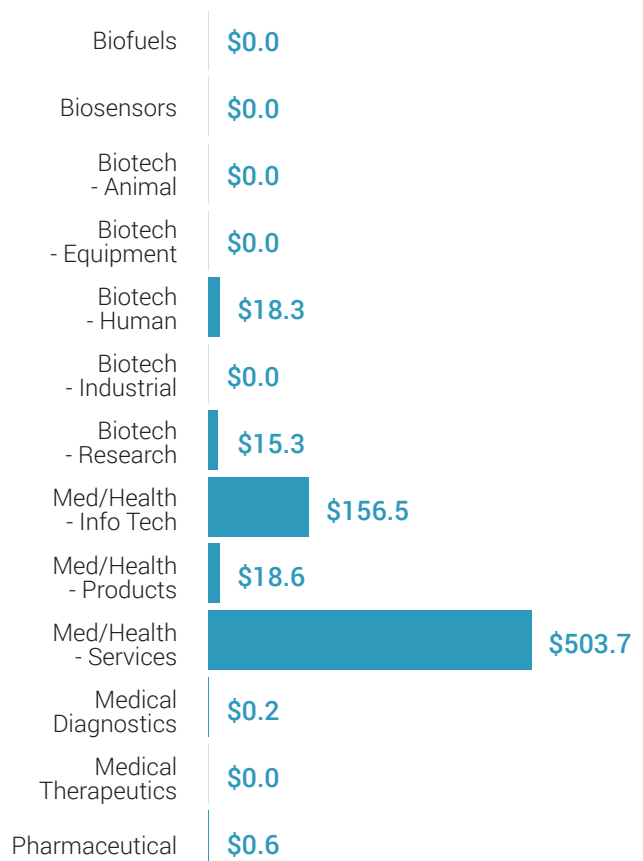


### Bioscience Venture Capital in Virginia

Bioscience-Related Venture Capital Investments  
\$ Millions  
2012-2015



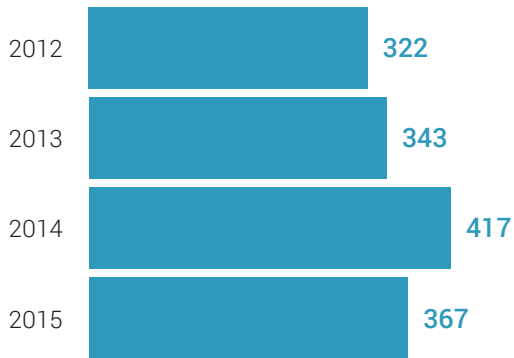
Bioscience-Related Venture Capital Investments by Segment  
\$ Millions  
2012-2015



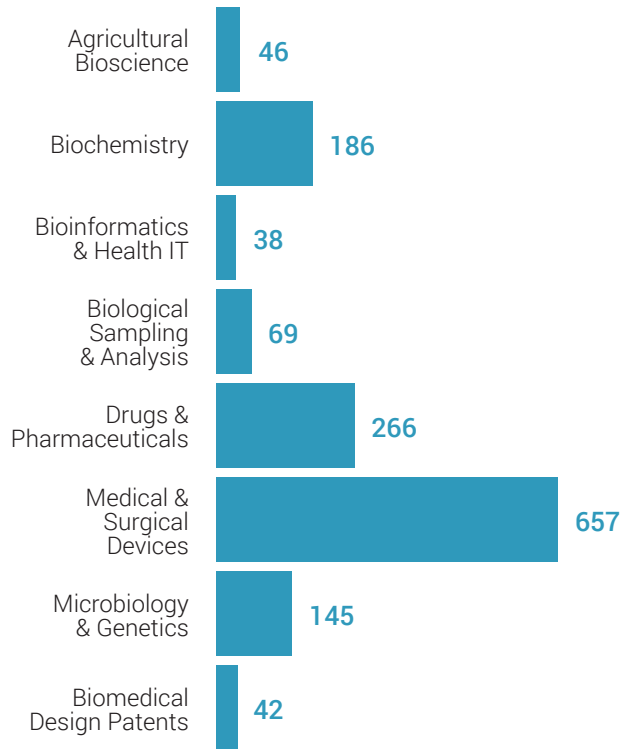


Bioscience Patents in Virginia

Bioscience-Related U.S. Patents 2012-2015



Bioscience-Related U.S. Patents by Segment 2012-2015



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).

**Venture Capital:** Thomson Reuters Thomson ONE venture capital database.

**Patents:** U.S. Patent & Trademark Office data from Thomson Reuters Thomson Innovation patent analysis database.

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

