

## Virginia



Virginia's bioscience industry is sizable and growing, with more than 26,500 industry jobs that spanned 1,451 business establishments in 2012. The state industry increased employment by 4.2 percent from 2007 to 2012, a period which includes the deep national recession and early years of the recovery. Double-digit job gains from three of the five industry subsectors contributed to Virginia's overall employment increase, these include: agricultural feedstock and chemicals; research, testing, and medical labs; and medical device manufacturing. Virginia's research institutions received nearly \$320 million in NIH funding awards in 2013. The state's bioscience companies received \$308 million in venture capital investments from 2009 through 2013, with about half of this focused in health IT/software.

## Bioscience Performance Metrics

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

Metric	Virginia	United States	Quintile
<b>Bioscience Industry, 2012</b>			
Bioscience Industry Employment	26,545	1,619,746	III
Bioscience Industry Location Quotient	0.62	n/a	IV
Bioscience Industry Establishments	1,451	73,088	II
<b>Academic Bioscience R&amp;D Expenditures, FY 2012</b>			
Bioscience R&D (\$ thousands)	\$681,826	\$38,139,876	II
Bioscience Share of Total R&D	53%	61%	III
Bioscience R&D Per Capita	\$83	\$119	IV
<b>NIH Funding, FY 2013</b>			
Funding (\$ thousands)	\$319,864	\$22,293,255	II
Funding Per Capita	\$39	\$70	III
<b>Bioscience Venture Capital Investments, 2009–13 (\$ millions)</b>	\$308.2	\$49,401.7	II
<b>Bioscience and Related Patents, 2009–13</b>	1,441	100,238	III

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

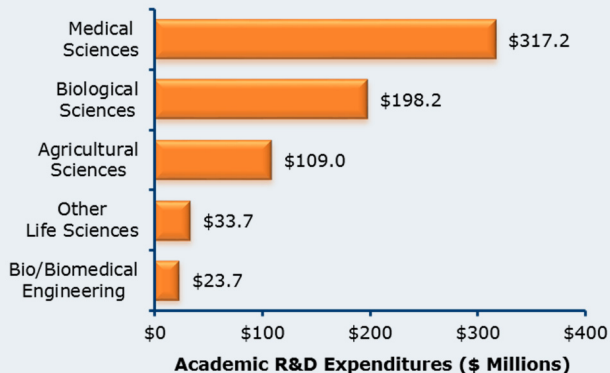
For source notes, see end of State Profile.

Industry Subsector	Virginia		United States	
	2012	2007-2012 Change	2012	2007-2012 Change
<b>Agricultural Feedstock &amp; Chemicals</b>				
Establishments	23	1.0%	1,772	5.2%
Employment	1,864	24.8%	76,404	-1.0%
Location Quotient	0.93		n/a	
Direct-Effect Employment Multiplier	9.2		18.1	
Total Employment Impact	17,094		1,382,637	
Average Annual Wage	\$84,469	9.3%	\$75,828	14.2%
<b>Bioscience-Related Distribution</b>				
Establishments	630	-3.4%	36,793	1.4%
Employment	6,960	-9.9%	442,016	-3.9%
Location Quotient	0.62		n/a	
Direct-Effect Employment Multiplier	2.6		2.7	
Total Employment Impact	18,111		1,199,015	
Average Annual Wage	\$72,647	9.7%	\$85,188	11.5%
<b>Drugs and Pharmaceuticals</b>				
Establishments	54	86.2%	3,057	12.0%
Employment	3,098	-14.0%	284,331	-10.9%
Location Quotient	0.41		n/a	
Direct-Effect Employment Multiplier	7.8		9.9	
Total Employment Impact	24,046		2,673,265	
Average Annual Wage	\$85,544	-1.9%	\$106,576	13.9%
<b>Medical Devices and Equipment</b>				
Establishments	140	86.7%	7,235	12.0%
Employment	1,990	10.1%	349,432	1.4%
Location Quotient	0.22		n/a	
Direct-Effect Employment Multiplier	3.2		3.9	
Total Employment Impact	6,369		1,318,459	
Average Annual Wage	\$65,686	28.4%	\$75,695	10.7%
<b>Research, Testing, and Medical Laboratories</b>				
Establishments	604	34.8%	24,231	31.0%
Employment	12,633	16.5%	467,563	9.7%
Location Quotient	1.03		n/a	
Direct-Effect Employment Multiplier	2.5		2.7	
Total Employment Impact	31,755		1,284,196	
Average Annual Wage	\$78,085	8.6%	\$91,248	15.9%
<b>Total Bioscience Industry</b>				
Establishments	1,451	18.2%	73,088	11.4%
Employment	26,545	4.2%	1,619,746	-0.4%
Location Quotient	0.62		n/a	
Direct-Effect Employment Multiplier	3.8		4.9	
Total Employment Impact	101,489		7,857,572	
Average Annual Wage	\$77,048	8.2%	\$88,202	12.8%
<b>Total Private Sector</b>				
Establishments	227,400	3.3%	8,699,564	-0.5%
Employment	2,922,165	-2.7%	111,137,206	-3.1%
Average Annual Wage	\$51,402	13.0%	\$49,130	11.1%

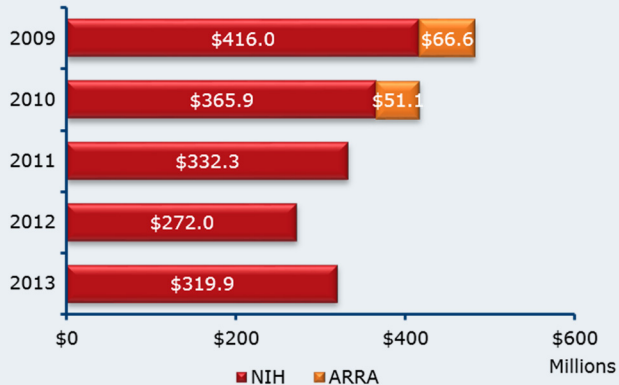
Note: U.S. employment metrics include Puerto Rico. Estimates of total impacts do not include Puerto Rico.

## Bioscience Research in Virginia

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



**NIH Awards, 2009–2013**

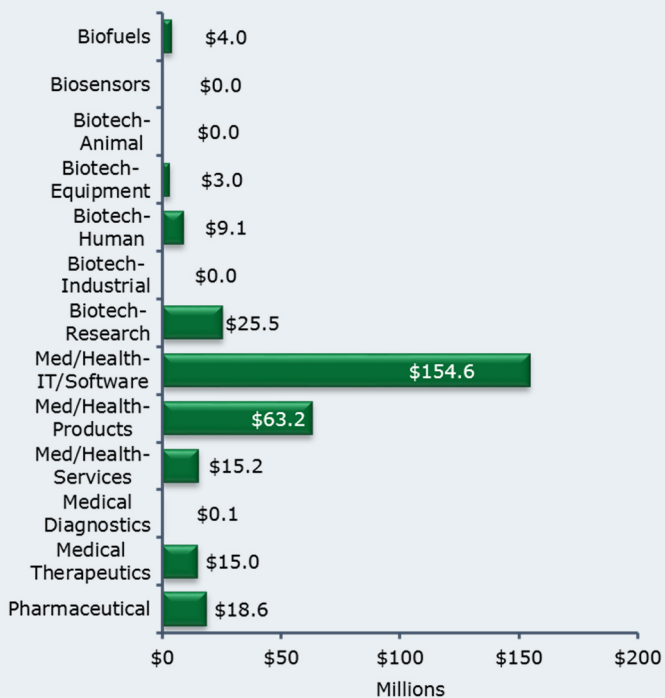


## Bioscience Venture Capital in Virginia

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

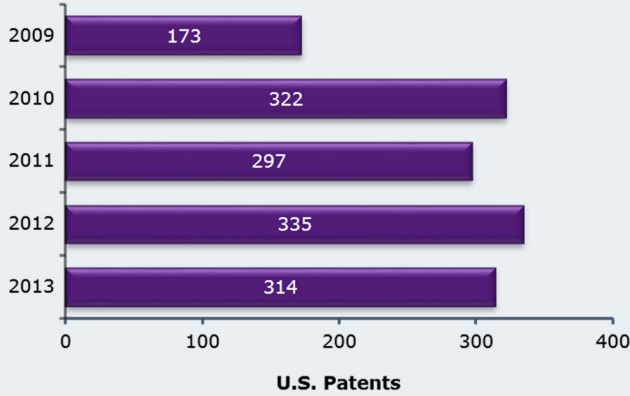


**Bioscience-Related Venture Capital Investments by Segment, 2009–2013**

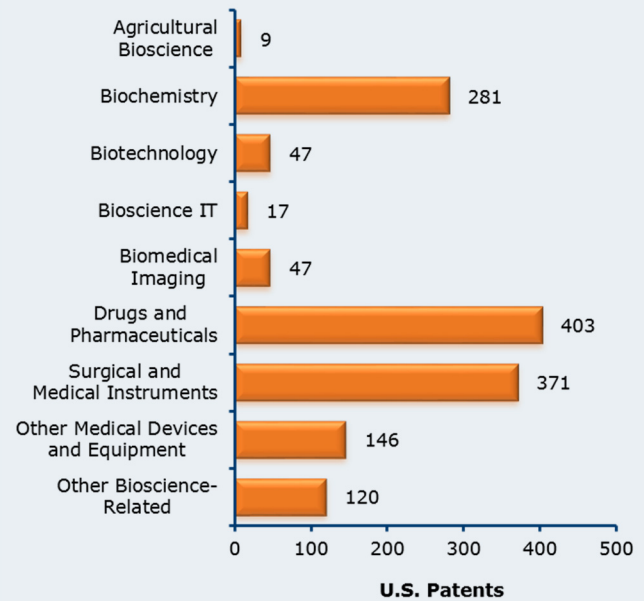


## Bioscience Patents in Virginia

### 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.