

The U.S. Bioscience Industry: Fostering Innovation and Driving America's Economy Forward

Bioscience industry employers in Virginia have increased employment by 15 percent since 2018, outpacing the national growth rate to reach 28,135 total jobs in 2021, while operating 2,696 business establishments. All five of the bioscience industry subsectors contributed to the overall job gains. Virginia's largest industry subsector is research, testing, and medical laboratories. Virginia's research universities had \$967 million in bioscience-related R&D expenditures in 2020. Fueling this academic R&D activity, NIH funding in the state has grown in recent years and totaled \$505 million in 2021. Venture capital investments in state bioscience companies have increased steadily and significantly in recent years and in 2021 totaled \$426 million.

Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

Metric	Virginia	United States	Quintile
Bioscience Industry, 2021			
Bioscience Industry Employment	28,135	2,135,704	III
Bioscience Industry Location Quotient	0.52	n/a	V
Bioscience Industry Establishments	2,696	127,389	II
Academic Bioscience R&D Expenditures, FY 2020			
Bioscience R&D (\$ thousands)	\$967,418	\$51,108,737	II
Bioscience Share of Total R&D	55%	63%	IV
Bioscience R&D Per Capita	\$112	\$154	III
NIH Funding, FY 2021			
Funding (\$ thousands)	\$504,645	\$34,751,109	II
Funding Per Capita	\$58	\$105	III
Bioscience Venture Capital Investments, 2018-21 (\$ millions)	\$1,034.89	\$197,674.54	II
Bioscience-Related Patents, 2018-21	1,862	153,072	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.



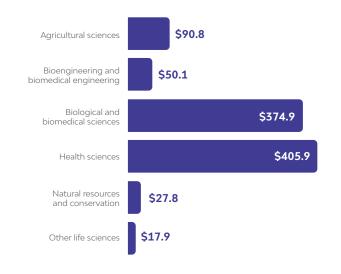
Establishments 34 17.2% 1,948	Industry Subsector			Virginia		United States		
Establishments 34 17.2% 1,948			2021		2021	2018–2021 Change		
Feedstock and Industrial Biosciences Employment 527 77.1% 69,573 Biosciences Average Annual Wage \$74,818 17.9% \$91,989 Bioscience-Related Distribution Employment 8,876 21.7% 602,589 Related Distribution Location Quotient 0.58 n/a Average Annual Wage \$107,586 21.7% \$121,606 Establishments 281 38.0% 10,268 Employment 2,905 4.9% 398,847 Location Quotient 0.29 n/a Average Annual Wage \$80,239 -4.4% \$98,481 Establishments 166 73.2% 5,973 Employment 2,903 4.3% 344,839 Pharmaceuticals Location Quotient 0.33 n/a Average Annual Wage \$102,198 10.5% \$126,153 Research, Testing, and Medical Location Quotient 12,924 14.5% 719,856 Medical Loboratories Location Quotient 0.70 n/a Average Annua	Feedstock and Industrial	Establishments	34	-	1,948	10.0%		
Biosciences		Employment	527	77.1%	69,573	1.9%		
Average Annual Wage \$74,818 17.9% \$91,989		Location Quotient	0.30		n/a			
Employment Related Distribution Employment Docation Quotient Distribution Distribu		Average Annual Wage	\$74,818	17.9%	\$91,989	13.1%		
Related Distribution Location Quotient 0.58 n/a Average Annual Wage \$107,586 21.7% \$121,606 Medical Devices and Equipment Establishments 281 38.0% 10,268 Medical Devices and Equipment Employment 2,905 4.9% 398,847 Location Quotient 0.29 n/a 10.24 Average Annual Wage \$80,239 -4.4% \$98,481 Establishments 166 73.2% 5,973 5,973 Employment 2,903 4.3% 344,839 10.33 n/a Location Quotient 0.33 n/a 10.5% \$126,153 Research, Testing, and Medical Laboratories Employment 12,924 14.5% 719,856 Medical Laboratories Location Quotient 0.70 n/a Average Annual Wage \$97,624 20.5% \$147,396 Establishments 2,696 27.4% 127,389 Total Bioscience Industry Employment 28,135 15.2% 2,135,704 <td< td=""><td rowspan="4">Related</td><td>Establishments</td><td>906</td><td>15.2%</td><td>62,697</td><td>14.7%</td></td<>	Related	Establishments	906	15.2%	62,697	14.7%		
Distribution Location Quotient Average Annual Wage \$107,586 21.7% \$121,606		Employment	8,876	21.7%	602,589	6.6%		
Establishments 281 38.0% 10,268		Location Quotient	0.58		n/a			
Medical Devices and Equipment Employment 2,905 4.9% 398,847 Location Quotient 0.29 n/a Average Annual Wage \$80,239 -4.4% \$98,481 Establishments 166 73.2% 5,973 Employment 2,903 4.3% 344,839 Location Quotient 0.33 n/a Average Annual Wage \$102,198 10.5% \$126,153 Research, Testing, and Medical Laboratories Employment 12,924 14.5% 719,856 Location Quotient 0.70 n/a n/a Average Annual Wage \$97,624 20.5% \$147,396 Establishments 2,696 27.4% 127,389 Total Bioscience Industry Employment 28,135 15.2% 2,135,704 Location Quotient 0.52 n/a		Average Annual Wage	\$107,586	21.7%	\$121,606	15.0%		
Average Annual Wage \$80,239 -4.4% \$98,481	Medical Devices	Establishments	281	38.0%	10,268	17.4%		
Average Annual Wage \$80,239 -4.4% \$98,481 Establishments 166 73.2% 5,973 Employment 2,903 4.3% 344,839 Location Quotient 0.33 n/a Average Annual Wage \$102,198 10.5% \$126,153 Establishments 1,309 30.7% 46,503 Research, Testing, and Medical Laboratories Location Quotient 0.70 n/a Average Annual Wage \$97,624 20.5% \$147,396 Establishments 2,696 27.4% 127,389 Total Bioscience Industry Location Quotient 0.52 n/a		Employment	2,905	4.9%	398,847	5.5%		
Establishments 166 73.2% 5,973 Employment 2,903 4.3% 344,839 Location Quotient 0.33 n/a Average Annual Wage \$102,198 10.5% \$126,153 Research, Testing, and Medical Laboratories Location Quotient 0.70 n/a Average Annual Wage \$97,624 20.5% \$147,396 Establishments 2,696 27.4% 127,389 Employment 28,135 15.2% 2,135,704 Location Quotient 0.52 n/a Total Bioscience Industry Location Quotient 0.52 n/a	and Equipment	Location Quotient	0.29		n/a			
Pharmaceuticals Employment 2,903 4.3% 344,839 Location Quotient 0.33 n/a Average Annual Wage \$102,198 10.5% \$126,153 Research, Testing, and Medical Laboratories Employment 12,924 14.5% 719,856 Average Annual Wage \$97,624 20.5% \$147,396 Establishments 2,696 27.4% 127,389 Total Bioscience Industry Employment 28,135 15.2% 2,135,704 Location Quotient 0.52 n/a		Average Annual Wage	\$80,239	-4.4%	\$98,481	8.7%		
Pharmaceuticals Location Quotient 0.33 n/a Average Annual Wage \$102,198 10.5% \$126,153 Research, Testing, and Medical Laboratories Employment 12,924 14.5% 719,856 Location Quotient 0.70 n/a Average Annual Wage \$97,624 20.5% \$147,396 Total Bioscience Industry Employment 28,135 15.2% 2,135,704 Location Quotient 0.52 n/a	Pharmaceuticals	Establishments	166	73.2%	5,973	34.7%		
Location Quotient 0.33		Employment	2,903	4.3%	344,839	11.9%		
Establishments 1,309 30.7% 46,503 1,309 30.7% 46,503 1,309 30.7% 46,503 1,309 30.7% 46,503 1,309 30.7% 46,503 1,309 30.7% 46,503 1,309 30.7% 46,503 1,309 1,30		Location Quotient	0.33		n/a			
Research, Testing, and Medical Laboratories Employment 12,924 14.5% 719,856 Average Annual Wage \$97,624 20.5% \$147,396 Establishments 2,696 27.4% 127,389 Total Bioscience Industry Employment 28,135 15.2% 2,135,704 Location Quotient 0.52 n/a		Average Annual Wage	\$102,198	10.5%	\$126,153	10.3%		
Testing, and Medical Laboratories Location Quotient 0.70 n/a Average Annual Wage \$97,624 20.5% \$147,396 Establishments 2,696 27.4% 127,389 Total Bioscience Industry Employment 28,135 15.2% 2,135,704 Location Quotient 0.52 n/a	Testing, and Medical	Establishments	1,309	30.7%	46,503	34.5%		
Average Annual Wage \$97,624 20.5% \$147,396 177		Employment	12,924	14.5%	719,856	19.3%		
Average Annual Wage \$97,624 20.5% \$147,396 Establishments 2,696 27.4% 127,389 Total Bioscience Industry		Location Quotient	0.70		n/a			
Total Bioscience Industry Employment 28,135 15.2% 2,135,704 Location Quotient 0.52 n/a		Average Annual Wage	\$97,624	20.5%	\$147,396	22.0%		
Industry Location Quotient 0.52 n/a		Establishments	2,696	27.4%	127,389	22.3%		
2 Location Sabilent 0.32		Employment	28,135	15.2%	2,135,704	11.0%		
		Location Quotient	0.52		n/a			
Average Annual Wage \$99,016 17.0% \$125,750		Average Annual Wage	\$99,016	17.0%	\$125,750	16.4%		
Establishments 288,522 6.6% 10,665,643	Total Private Sector	Establishments	288,522	6.6%	10,665,643	9.3%		
Total Private Employment 3,146,067 -1.3% 123,376,557		Employment	3,146,067	-1.3%	123,376,557	-1.5%		
Sector Location Quotient 1.00 n/a		Location Quotient	1.00		n/a			
Average Annual Wage \$68,143 17.8% \$67,826		Average Annual Wage	\$68,143	17.8%	\$67,826	18.9%		

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

Bioscience Research in Virginia

Bioscience Academic R&D Expenditures

\$ Millions, FY 2020



NIH Awards

\$ Millions, FY 2018-2021



Bioscience Venture Capital in Virginia

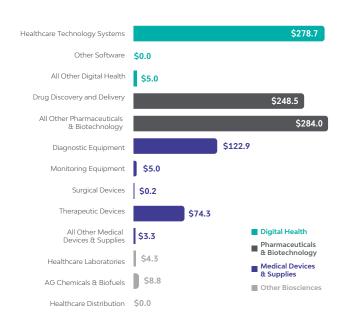
Bioscience-Related Venture Capital Investments

\$ Millions, 2018-2021



Bioscience-Related Venture Capital Investments by Segment

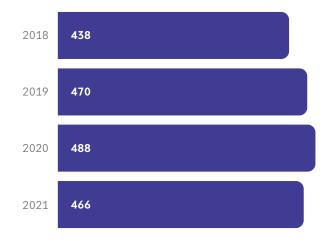
\$ Millions, 2018-2021



Bioscience Patents in Virginia

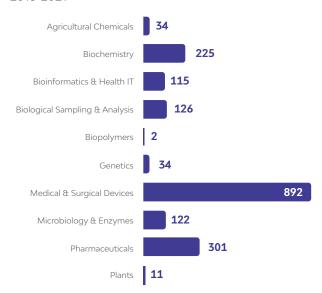
Bioscience-Related U.S. Patents

2018-2021



Bioscience-Related U.S. Patents by Segment

2018-2021



Source Notes

Employment, Establishments and Wages: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW), enhanced by Lightcast (Datarun 2022.3).

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.



