

NORTH CAROLINA

North Carolina has more than 5 percent of national employment and an employment specialization (location quotient of 2.10) in drugs and pharmaceuticals and other specializations in agricultural feedstock and chemicals (1.50) and research, testing, and medical laboratories (1.22). All four of the bioscience subsectors in North Carolina grew over the 2001–2006 period. Academic bioscience research expenditures were \$1.31 billion in 2006, and growing faster than the national rate. The largest categories were medical sciences (\$777 million) and biological sciences (\$379 million). Bioscience venture capital invested during the past 6 years totaled \$1.53 billion, with more than 35 percent investment in human biotechnology, followed by medical therapeutics and pharmaceuticals. Drugs and pharmaceuticals also led the 2,340 bioscience patents issued in the same period.

Major Industry Developments and Recent Successes

- **Novartis** announced that it would build a \$267.5 million flu vaccine manufacturing plant in Holly Springs, creating 350 jobs.
- **Merck** announced a \$100 million expansion of its vaccine facility in Durham, adding 50 to 60 more jobs to the 200 workers employed at its recently completed \$300 million, 235,000-square-foot facility.
- **Embrex**, a poultry-vaccine start-up with close ties to North Carolina State University, was acquired by **Pfizer** for \$155 million.

Recent State Initiatives

The North Carolina Biotechnology Center (NCBC) unveiled its **Centers of Innovation** Strategy in 2007, complementing the 2003 New Jobs Across North Carolina Strategy. As part of a statewide focus, NCBC is supporting North Carolina Research Campus, a multi-institutional research park dedicated to nutrition, health, and biotechnology and based at a former textile site in Kannapolis, near Charlotte. During 2007, the state appropriated \$18 million toward development and NCBC provided \$2 million in equipment and facilities grants.

Also in 2007, the state announced a **Strategic Plan for Biofuels Leadership**. In 2008, the North Carolina Board of Science and Technology announced that it would support the strategy through a \$1 million **Green Business Fund** that will make grants to start-up businesses in biofuels as well as in green buildings.

Since the last BIO report, the \$38 million **Golden LEAF Biomanufacturing Training and Education Center** opened on the Centennial Campus of North Carolina State University in Raleigh, and the **Biomanufacturing Research Institute and Technology Enterprise** at North Carolina Central University in Durham moved toward completion. Both are part of a broader initiative funded by the Golden LEAF Foundation that also includes a network of community college-based training centers.

University technology transfer offices statewide can now draw on support for start-up formation from a new **Business Acceleration and Technology Out-Licensing Network** supported by NCBC.

For additional information on North Carolina's bioscience policies and programs, please see <http://www.ncbiotech.org> or <http://www.ncbioscience.org>.

Bioscience Industry Base, 2006

Industry Subsector	North Carolina		United States	
	2006	2001-06 Change	2006	2001-06 Change
Agricultural Feedstock & Chemicals				
Establishments	60	1.3%	2,183	3.8%
Employment	4,635	3.0%	105,846	-6.1%
Location Quotient	1.50		n.a.	
Direct-Effect Employment Multiplier	6.69		11.22	
Total Employment Impact	30,999		1,214,709	
Average Annual Wage	\$69,061		\$67,870	
Drugs & Pharmaceuticals				
Establishments	72	-10.0%	2,654	1.9%
Employment	19,409	3.4%	317,149	4.0%
Location Quotient	2.10		n.a.	
Direct-Effect Employment Multiplier	6.54		9.92	
Total Employment Impact	126,974		2,880,242	
Average Annual Wage	\$81,085		\$86,892	
Medical Devices & Equipment				
Establishments	404	8.2%	15,215	0.3%
Employment	9,165	14.0%	422,993	-0.9%
Location Quotient	0.74		n.a.	
Direct-Effect Employment Multiplier	3.27		4.85	
Total Employment Impact	29,998		1,980,128	
Average Annual Wage	\$46,986		\$59,441	
Research, Testing, & Medical Laboratories				
Establishments	602	27.9%	22,857	32.7%
Employment	16,005	56.9%	449,991	17.8%
Location Quotient	1.22		n.a.	
Direct-Effect Employment Multiplier	2.46		3.25	
Total Employment Impact	39,298		1,440,500	
Average Annual Wage	\$69,164		\$71,284	
Total Private Sector				
Establishments	236,433	9.6%	8,575,730	10.2%
Employment	3,302,440	3.5%	113,463,842	3.1%
Average Annual Wage	\$37,280		\$42,272	

Note: n.a. = metric is not applicable.

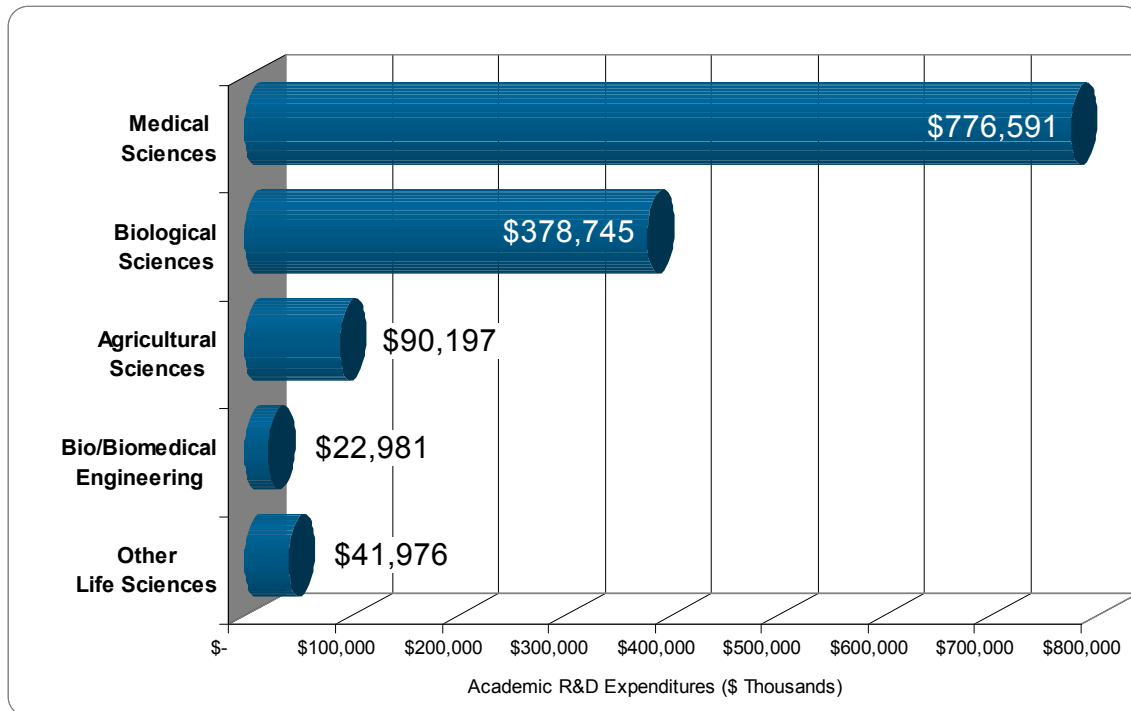
Additional Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

	North Carolina	United States	Rank
Academic R&D Expenditures, FY 2006			
Total (\$ thousands)	\$1,710,496	\$47,760,402	8
Bioscience R&D (\$ thousands)	\$1,310,490	\$29,307,628	6
Bioscience Share of Total R&D	76.6%	61.4%	
Bioscience R&D Per Capita	\$147.75	\$98.10	
Change in Bioscience R&D FY 2002–2006	40.8%	36.9%	
NIH Funding, FY 2007			
Total (\$ thousands)	\$931,189	\$21,066,389	7
Per Capita Funding	\$102.77	\$69.84	
Change in Funding, FY 2002–2007	19.3%	11.2%	
Higher Education Degrees in Bioscience Fields, AY 2006			
	4,174	143,433	10
Employment in Bioscience-related Occupations, 2006			
	18,510	588,520	9
Bioscience Venture Capital Investments, 2002-2007 (\$ millions)			
	\$1,527.3	\$51,260.9	7
Bioscience and Related Patents, 2002-2007			
	2,340	121,817	20

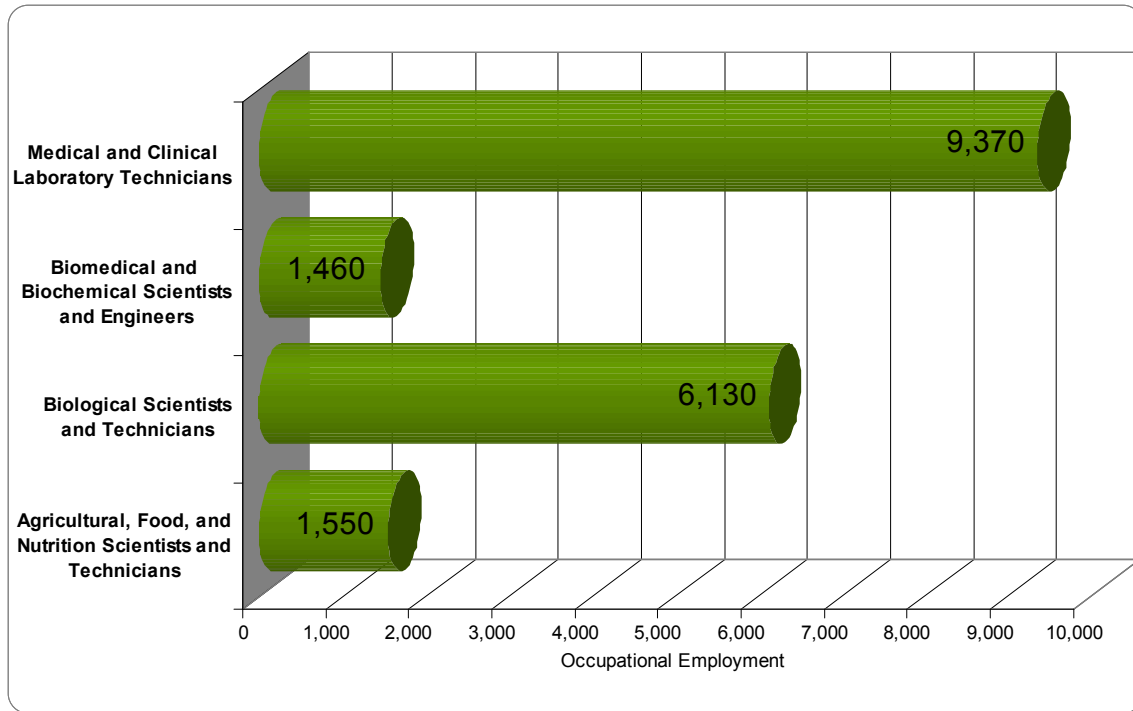
Bioscience R&D Base

Bioscience Academic R&D Expenditures in North Carolina, FY 2006

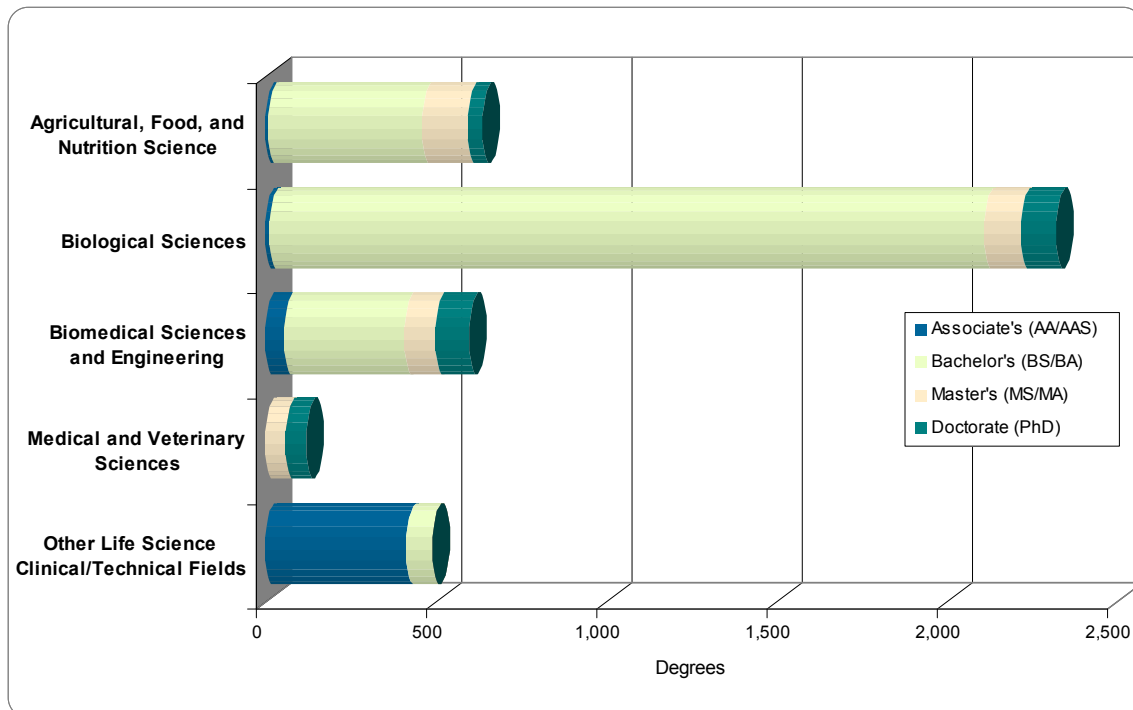


Bioscience Talent Base

Bioscience-related Occupational Employment in North Carolina, 2006

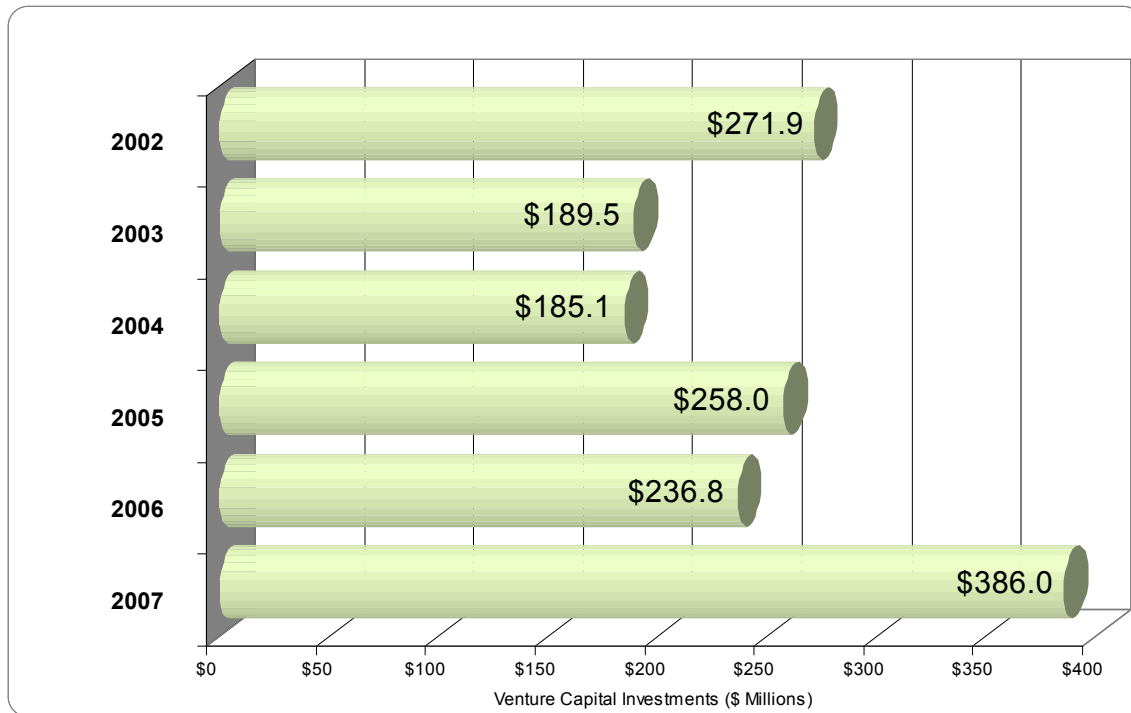


Bioscience-related Degrees in North Carolina, AY 2006

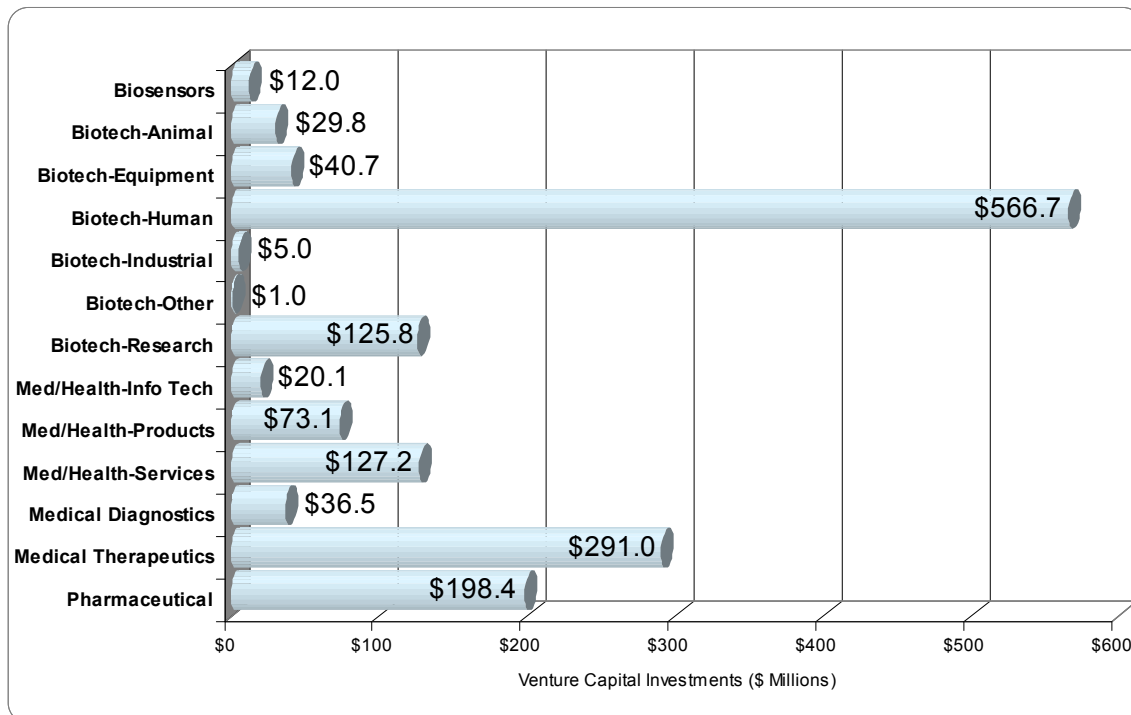


Bioscience Venture Capital

Bioscience-related Venture Capital Investments in North Carolina, 2002–2007

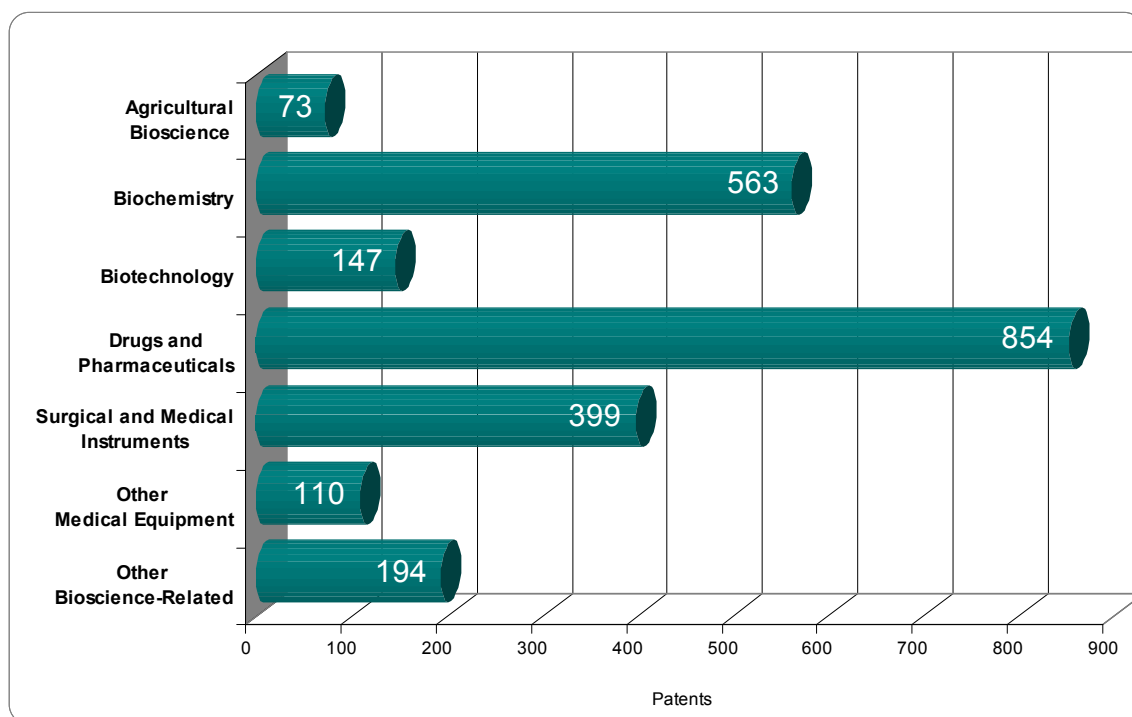


Bioscience-related Venture Capital Investments in North Carolina by Segment, 2002–2007



Bioscience Patents

Bioscience-related Patents by Classification Group in North Carolina, 2002–2007



State Bioscience Contacts

State Agency Contact:

Norris Tolson
President & CEO
North Carolina Biotechnology Center
P.O. Box 13547
Research Triangle Park, NC 27709
(919) 541-9366
Norris.tolson@ncbiotech.org

State Bio Association Contact:

Sam Taylor
President
North Carolina Biosciences Organization
P.O. Box 14354
Research Triangle Park, NC 27709
(919) 281-8960
info@ncbioscience.org

Source Notes:

Employment, Establishment, and Wage Data: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) industry data provided by the Minnesota IMPLAN Group, 2001 and 2006.

Employment Multipliers: U.S. Bureau of Economic Analysis RIMS II Employment Multipliers, 2005 (most currently available).

Academic R&D Expenditures: National Science Foundation (NSF) Survey of Research and Development Expenditures at Universities and Colleges, 2002 and 2006.

NIH Funding: National Institutes of Health – Office of Extramural Research, Award Trends – Dollars Awarded by State, 2002 and 2007.

Higher Education Degrees: National Center for Educational Statistics, Integrated Postsecondary Education Data System (IPEDS), 2006.

Occupational Employment: U.S. Bureau of Labor Statistics, Occupational Employment Statistics (OES) survey data, 2006.

Venture Capital: Thomson Reuters VentureXpert Database, 2002-2007, as of May 1, 2008.

Patents: U.S. Patent & Trademark Office data as available from the Thomson Reuters' Delphion Patent Analysis Database, 2002–2007, as of May 1, 2008.

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