

## GEORGIA

Employment in Georgia's research, testing, and medical laboratories subsector exceeds 7,000 and has grown faster than the national average since 2001. Academic research expenditures in the biosciences hit nearly \$726 million in 2006, predominantly in medical sciences (\$294 million) and biological sciences (\$244 million), but with a significant share in bio/biomedical engineering (\$27 million). The \$722 million in venture capital invested in the biosciences during the past 6 years was widely diversified across fields, led by human biotechnology, medical therapeutics, and medical/health services. The 2,169 patents issued were most commonly in surgical and medical instruments, followed by drugs and pharmaceuticals and biochemistry.

**Major Industry Developments and Recent Successes**

- **Solvay Pharmaceuticals**, whose U.S. headquarters is in Georgia, received a \$298 million federal grant in 2006 to develop cell-based vaccines. Plans are to manufacture the vaccines in the United States.
- **Sciele® Pharma** of Atlanta acquired Alpharetta-based **Alliant Pharmaceuticals** for \$110 million in 2007. Alliant is a pediatric specialty pharmaceutical company with more than 85 employees. Sciele, founded in 1992, went public in 2000 and has 900 employees and a market cap of \$800 million.
- Belgium-based **UCB**, whose U.S. headquarters is in Smyrna, acquired Germany-based **Schwarz Pharmaceuticals** for \$5.6 billion in 2006.

**Recent State Initiatives**

In 2007, the U.S. Department of Energy awarded \$125 million each to three **U.S. Bioenergy Research Centers**, one of which is led by the Oak Ridge National Laboratory in Tennessee. The University of Georgia is providing scientific leadership for the team that also includes the Georgia Institute of Technology, the University of Tennessee, Dartmouth University, the National Renewable Energy Laboratory, the Brookhaven National Laboratory, the Noble Foundation, ArborGen LLC, Diversa Corporation, and Mascoma Corporation. The Georgia Research Alliance (GRA) will contribute \$1.3 million to the Center to be used for equipment and matching requirements in FY 2008. The GRA provided \$500,000 in FY 2007 and \$400,000 in FY 2008 for biofuels research seed grants.

The GRA continues to invest in bioscience researchers and research infrastructure. In FY 2008, Georgia invested \$10.7 million to support 40 GRA **Eminent Scholars** and Distinguished Investigators in the biosciences (both new recruits and existing scholars). In FY 2007 and FY 2008, the GRA also invested approximately \$37 million of state funding in bioscience research infrastructure at the state's research universities. These GRA investments have helped to attract several high-profile national centers and awards to Georgia over the past 2 years, including one of six National Institutes of Health (NIH) Centers of Excellence for Influenza Research and Surveillance and a \$32 million NIH Clinical and Translational Science Award.

In FY 2008, the GRA launched its new **Next-Generation Vaccines and Therapeutics Initiative** with \$10 million in initial funding from the state. This funding is focused primarily on recruitment of academic scientists, development of research infrastructure, and acceleration of commercial translation programs. Approximately \$1.1 million of the initial allocation supports collaborative R&D projects among researchers at Georgia's academic institutions.

A number of new efforts are underway in Georgia to meet the workforce needs of the bioscience sector. The **Georgia Bioscience Technology Institute**, a joint program of the Athens and Gwinnett Technical Colleges, was formed in 2007 to train a broad range of bioscience employees, including those who will work in biomanufacturing facilities. The University of Georgia's College of Pharmacy established a **Clinical Trials Design and Management certificate program** and a **Pharmaceutical and**

**Biomedical Regulatory Affairs graduate certificate program.** Georgia Bio, the Governor's Office of Workforce Development, and other partners are part of an effort to accelerate development of the bioscience workforce in Georgia with funding from a \$500,000 Work Ready Region (WRR) grant awarded in 2008 by the state. The program aims to create an articulated life sciences career pathway from high school to technical colleges to universities, create training for the existing industry workforce, eliminate the skills gap, and increase high school graduation rates.

In 2008, the State of Georgia committed \$7.5 million to create the **Georgia Research Alliance Venture Capital Fund**. This funding will be matched 3 to 1 by private investments. The state will provide tax credits for people who invest in, or alongside, the Venture Capital Fund to encourage additional interest. The Fund will be an extension of VentureLab, a GRA program that helps universities identify laboratory discoveries with commercial potential and guides faculty seeking to create start-up companies based on the technologies identified. The Fund will make investments in a variety of technology areas, including the biosciences.

For additional information on Georgia's bioscience policies and programs, please see [www.gra.org](http://www.gra.org), [www.gabio.org](http://www.gabio.org), and [www.georgiabiosciences.com](http://www.georgiabiosciences.com).

## Bioscience Industry Base, 2006

| Industry Subsector                                   | Georgia   |                | United States |                |
|------------------------------------------------------|-----------|----------------|---------------|----------------|
|                                                      | 2006      | 2001-06 Change | 2006          | 2001-06 Change |
| <b>Agricultural Feedstock &amp; Chemicals</b>        |           |                |               |                |
| Establishments                                       | 76        | 4.3%           | 2,183         | 3.8%           |
| Employment                                           | 2,062     | -25.7%         | 105,846       | -6.1%          |
| Location Quotient                                    | 0.66      |                | n.a.          |                |
| Direct-Effect Employment Multiplier                  | 5.60      |                | 11.22         |                |
| Total Employment Impact                              | 11,554    |                | 1,214,709     |                |
| Average Annual Wage                                  | \$49,333  |                | \$67,870      |                |
| <b>Drugs &amp; Pharmaceuticals</b>                   |           |                |               |                |
| Establishments                                       | 48        | 26.3%          | 2,654         | 1.9%           |
| Employment                                           | 3,271     | 3.2%           | 317,149       | 4.0%           |
| Location Quotient                                    | 0.35      |                | n.a.          |                |
| Direct-Effect Employment Multiplier                  | 6.28      |                | 9.92          |                |
| Total Employment Impact                              | 20,544    |                | 2,880,242     |                |
| Average Annual Wage                                  | \$88,408  |                | \$86,892      |                |
| <b>Medical Devices &amp; Equipment</b>               |           |                |               |                |
| Establishments                                       | 384       | 5.5%           | 15,215        | 0.3%           |
| Employment                                           | 7,172     | -4.2%          | 422,993       | -0.9%          |
| Location Quotient                                    | 0.57      |                | n.a.          |                |
| Direct-Effect Employment Multiplier                  | 3.25      |                | 4.85          |                |
| Total Employment Impact                              | 23,308    |                | 1,980,128     |                |
| Average Annual Wage                                  | \$50,986  |                | \$59,441      |                |
| <b>Research, Testing, &amp; Medical Laboratories</b> |           |                |               |                |
| Establishments                                       | 538       | 44.4%          | 22,857        | 32.7%          |
| Employment                                           | 7,137     | 29.9%          | 449,991       | 17.8%          |
| Location Quotient                                    | 0.53      |                | n.a.          |                |
| Direct-Effect Employment Multiplier                  | 2.25      |                | 3.25          |                |
| Total Employment Impact                              | 16,081    |                | 1,440,500     |                |
| Average Annual Wage                                  | \$51,322  |                | \$71,284      |                |
| <b>Total Private Sector</b>                          |           |                |               |                |
| Establishments                                       | 253,461   | 12.2%          | 8,575,730     | 10.2%          |
| Employment                                           | 3,368,208 | 2.9%           | 113,463,842   | 3.1%           |
| Average Annual Wage                                  | \$40,804  |                | \$42,272      |                |

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

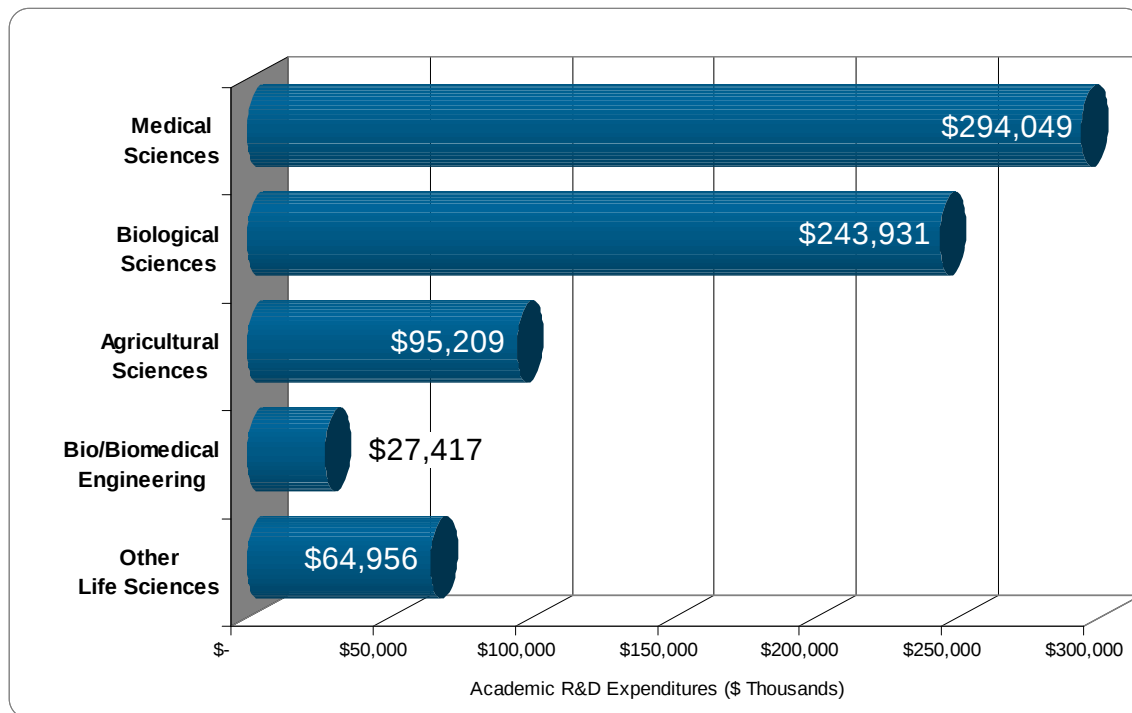
## Additional Bioscience Performance Metrics

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

|                                                                 | Georgia     | United States | Rank |
|-----------------------------------------------------------------|-------------|---------------|------|
| Academic R&D Expenditures, FY 2006                              |             |               |      |
| Total (\$ thousands)                                            | \$1,302,570 | \$47,760,402  | 12   |
| Bioscience R&D (\$ thousands)                                   | \$725,562   | \$29,307,628  | 13   |
| Bioscience Share of Total R&D                                   | 55.7%       | 61.4%         |      |
| Bioscience R&D Per Capita                                       | \$77.67     | \$98.10       |      |
| Change in Bioscience R&D FY 2002–2006                           | 26.6%       | 36.9%         |      |
| NIH Funding, FY 2007                                            |             |               |      |
| Total (\$ thousands)                                            | \$365,704   | \$21,066,389  | 17   |
| Per Capita Funding                                              | \$38.31     | \$69.84       |      |
| Change in Funding, FY 2002–2007                                 | 17.2%       | 11.2%         |      |
| Higher Education Degrees in Bioscience Fields, AY 2006          | 3,116       | 143,433       | 14   |
| Employment in Bioscience-related Occupations, 2006              | 13,200      | 588,520       | 15   |
| Bioscience Venture Capital Investments, 2002-2007 (\$ millions) | \$722.4     | \$51,260.9    | 14   |
| Bioscience and Related Patents, 2002-2007                       | 2,169       | 121,817       | 22   |

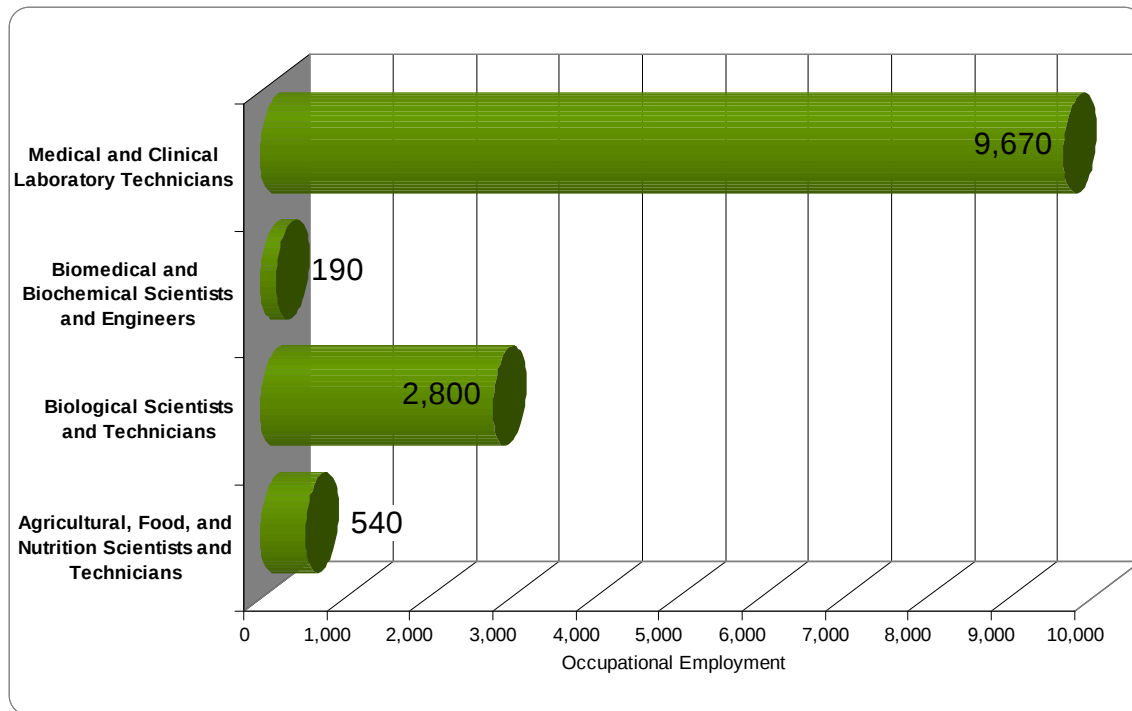
## Bioscience R&D Base

### Bioscience Academic R&D Expenditures in Georgia, FY 2006

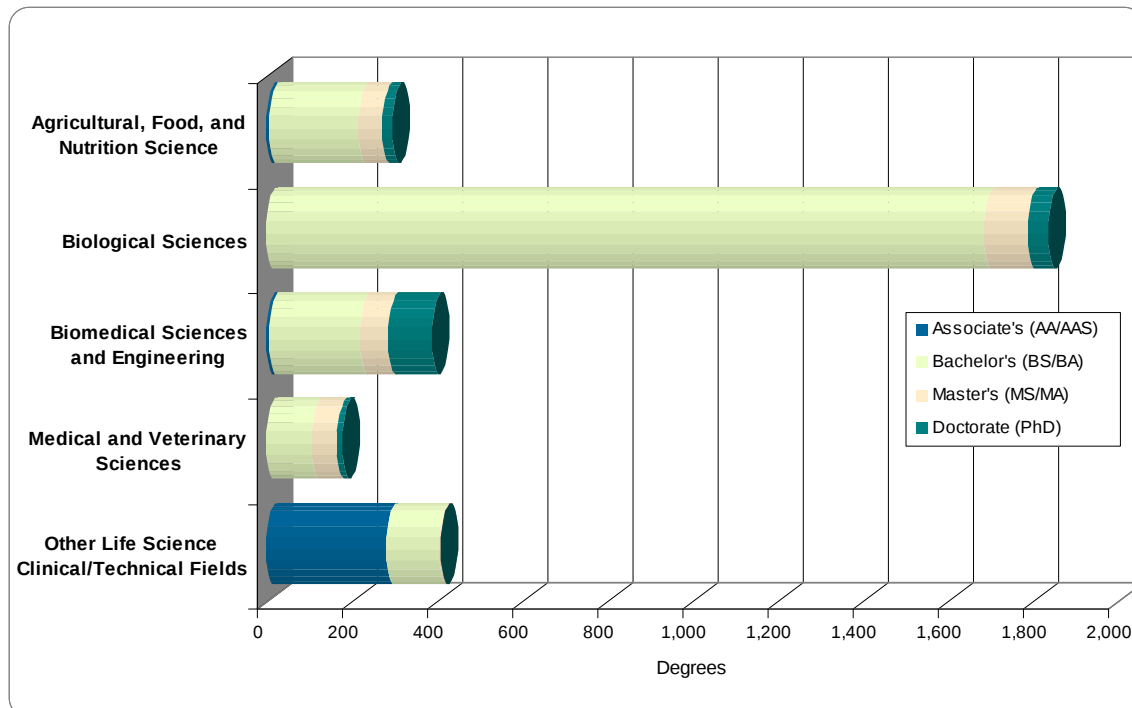


## Bioscience Talent Base

### Bioscience-related Occupational Employment in Georgia, 2006

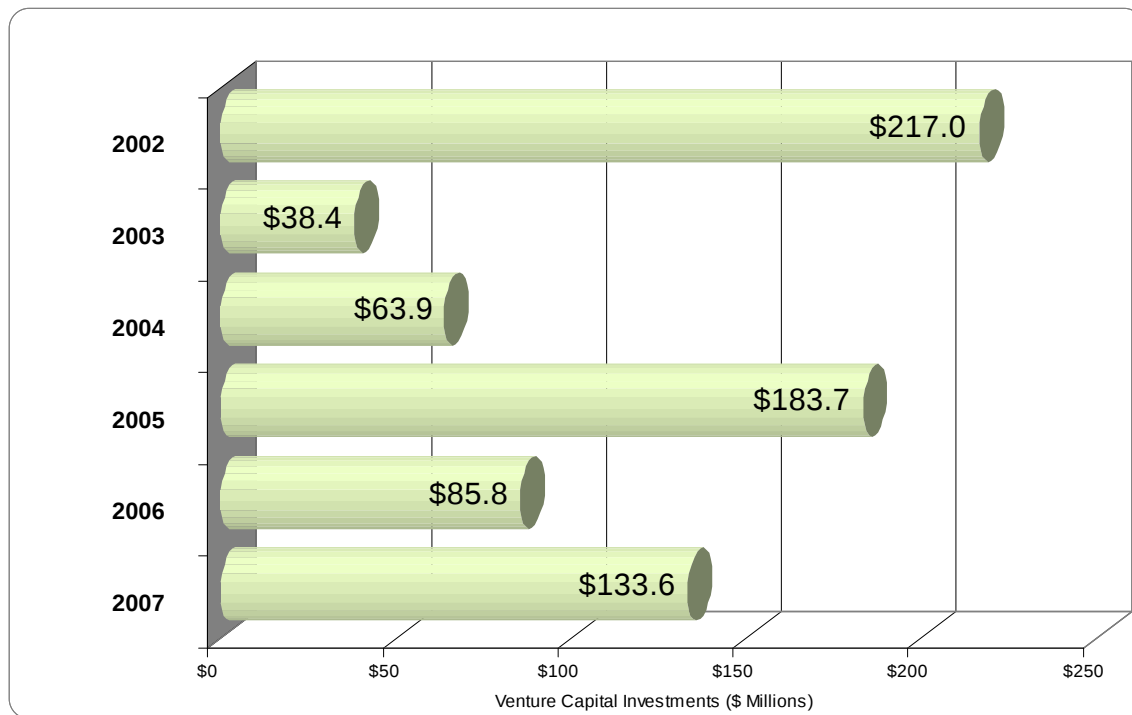


### Bioscience-related Degrees in Georgia, AY 2006

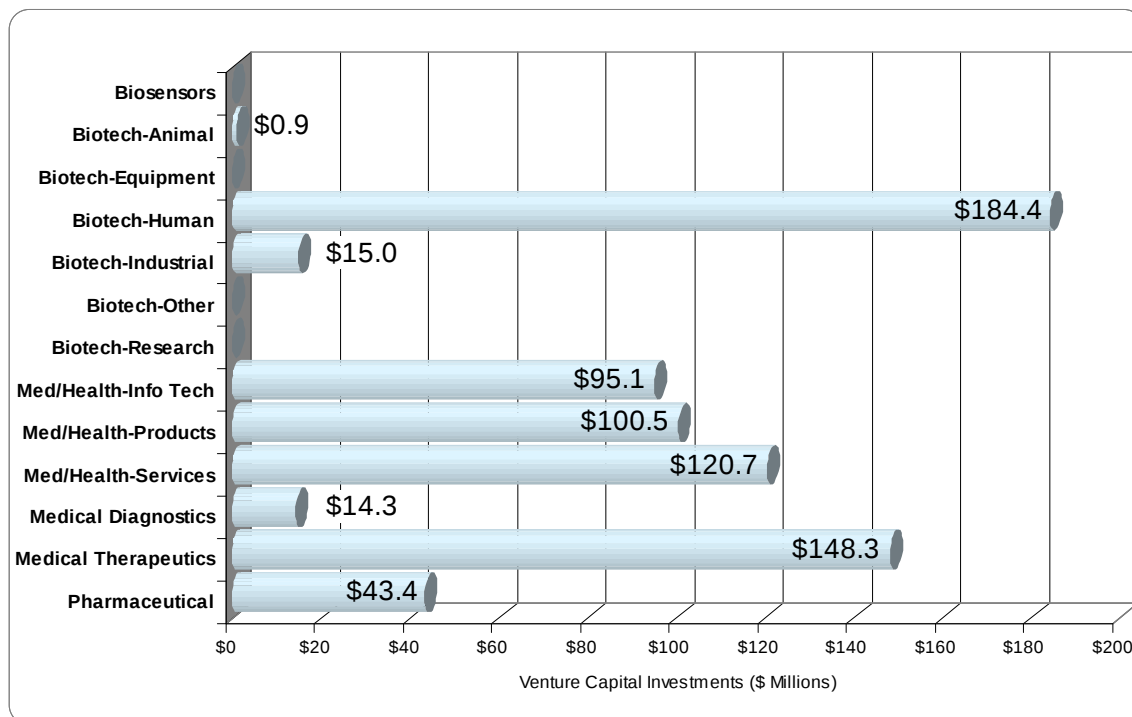


## Bioscience Venture Capital

### Bioscience-related Venture Capital Investments in Georgia, 2002–2007

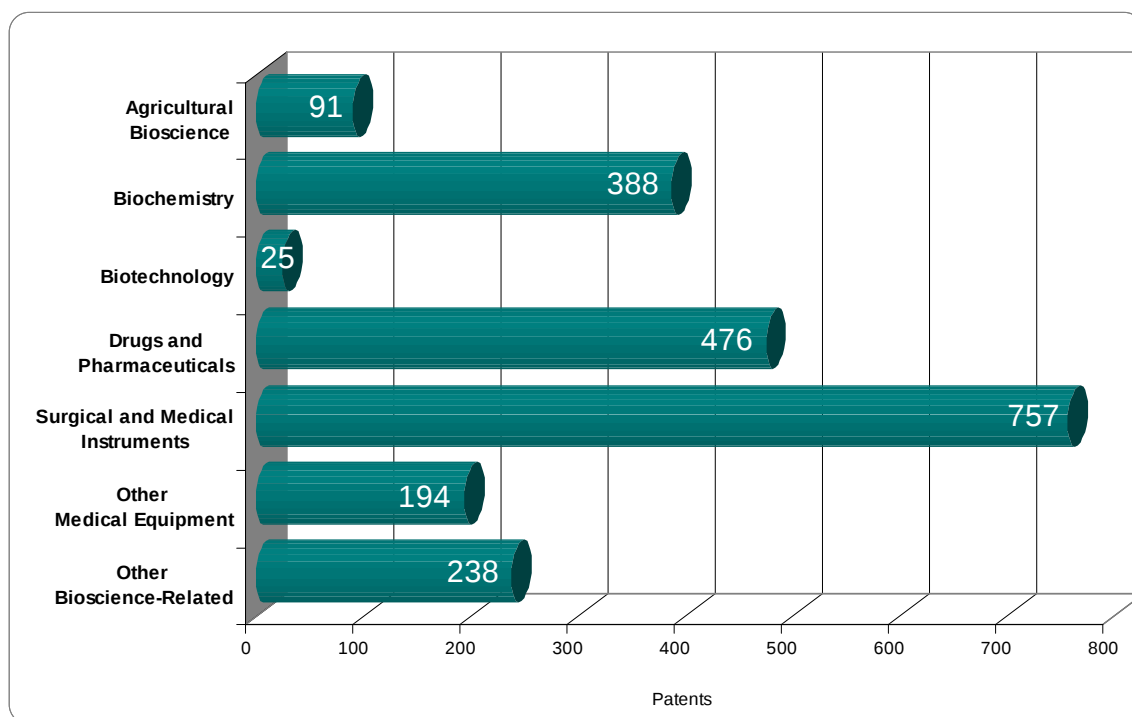


### Bioscience-related Venture Capital Investments in Georgia by Segment, 2002–2007



## Bioscience Patents

### Bioscience-related Patents by Classification Group in Georgia, 2002–2007



## State Bioscience Contacts

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### 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.