

## TEXAS

Texas has nearly 10 percent of national employment and an employment specialization (location quotient of 1.33) in agricultural feedstock and chemicals. In research, testing, and medical laboratories, employment was nearly 5 percent of the national total, and the growth rate exceeded that for the United States. Texas ranked among the top 10 states across all additional key bioscience metrics. Total academic bioscience research expenditures were \$2.22 billion in 2006, led by medical sciences and biological sciences. Total venture capital invested in bioscience fields over the past 6 years was \$1.34 billion, well distributed across sectors and led by medical/health services, human biotechnology, and medical therapeutics. The 3,301 bioscience patents issued in the same period were also well diversified, led by drugs and pharmaceuticals, surgical and medical instruments, and biochemistry.

### Major Industry Developments and Recent Successes

- Austin Ventures spun out **Santé Ventures**, a new venture-capital firm with healthcare investment experience. Santé closed its first fund in December 2007, with \$130 million in capital committed primarily to seed- and early-stage companies in medical technologies and healthcare services.
- The **Texas Institute for Preclinical Studies** broke ground in College Station for a facility that will conduct large-animal studies, preclinical studies, and biomedical imaging to support development in the pharmaceutical and medical-equipment industries.
- The TETF invested \$750,000 in Houston-based **OrthoAccel Technologies** recently to further develop and commercialize its revolutionary orthodontic device, Celerec 1000.

### Recent State Initiatives

In November 2007, Texas voters overwhelmingly approved \$3 billion in general obligation bonds to finance a 10-year research fund to be administered by the **Cancer Prevention and Research Institute**. Grants will become available in 2010 and continue through 2020.

The **Texas Emerging Technology Fund (TETF)** (funded at \$100 million per year over multiple fields for facility development, faculty recruitment, and commercialization initiatives) reported its first “liquidity event” in the bioscience cluster, upon acquisition of CardioSpectra by Volcano Corporation. The TETF reported a return of 46 percent on its investment of \$1.25 million. CardioSpectra is a diagnostics company with collaborations at the University of Texas (UT) at Austin and UT Health Science Center at San Antonio.

The University of Houston (UH) developed a new biotechnology Bachelor of Science degree with tracks in bioprocessing and bioinformatics. UH also created the **Center for Life Sciences Technology**, a clearinghouse for life science and STEM (science, technology, engineering, and mathematics) education at the K-12 and community-college levels, and an outreach program aimed at improving public knowledge of life science career and educational options. The **Texas Bioscience Institute**, a collaborative based at Scott and White Hospital in Temple, likewise serves as a clearinghouse for community college degrees, pathways to university degrees, apprenticeships, and other career paths for students in STEM tracks with interest in the life sciences.

### Pending Proposals

In November 2007, Governor Rick Perry appointed a **Competitiveness Council** that will identify barriers and opportunities in all six of the State’s cluster-development targets including the biosciences. Recommendations are due in August 2008 and are expected to include a focus on the technology transfer and commercialization operations of the State’s public university systems.

For additional information on Texas's bioscience policies and programs, please see <http://www.emergingtechfund.com> and <http://www.thbi.com>.

## Bioscience Industry Base, 2006

Industry Subsector	Texas		United States	
	2006	2001-06 Change	2006	2001-06 Change
<b>Agricultural Feedstock &amp; Chemicals</b>				
Establishments	222	7.5%	2,183	3.8%
Employment	10,240	-28.5%	105,846	-6.1%
Location Quotient	1.33		n.a.	
Direct-Effect Employment Multiplier	8.76		11.22	
Total Employment Impact	89,728		1,214,709	
Average Annual Wage	\$85,222		\$67,870	
<b>Drugs &amp; Pharmaceuticals</b>				
Establishments	137	2.2%	2,654	1.9%
Employment	9,543	6.5%	317,149	4.0%
Location Quotient	0.41		n.a.	
Direct-Effect Employment Multiplier	6.49		9.92	
Total Employment Impact	61,917		2,880,242	
Average Annual Wage	\$95,420		\$86,892	
<b>Medical Devices &amp; Equipment</b>				
Establishments	796	-8.4%	15,215	0.3%
Employment	16,132	-9.8%	422,993	-0.9%
Location Quotient	0.53		n.a.	
Direct-Effect Employment Multiplier	3.49		4.85	
Total Employment Impact	56,357		1,980,128	
Average Annual Wage	\$49,546		\$59,441	
<b>Research, Testing, &amp; Medical Laboratories</b>				
Establishments	1,373	43.2%	22,857	32.7%
Employment	21,238	22.7%	449,991	17.8%
Location Quotient	0.65		n.a.	
Direct-Effect Employment Multiplier	2.54		3.25	
Total Employment Impact	53,979		1,440,500	
Average Annual Wage	\$56,793		\$71,284	
<b>Total Private Sector</b>				
Establishments	520,897	8.6%	8,575,730	10.2%
Employment	8,242,069	5.8%	113,463,842	3.1%
Average Annual Wage	\$43,269		\$42,272	

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

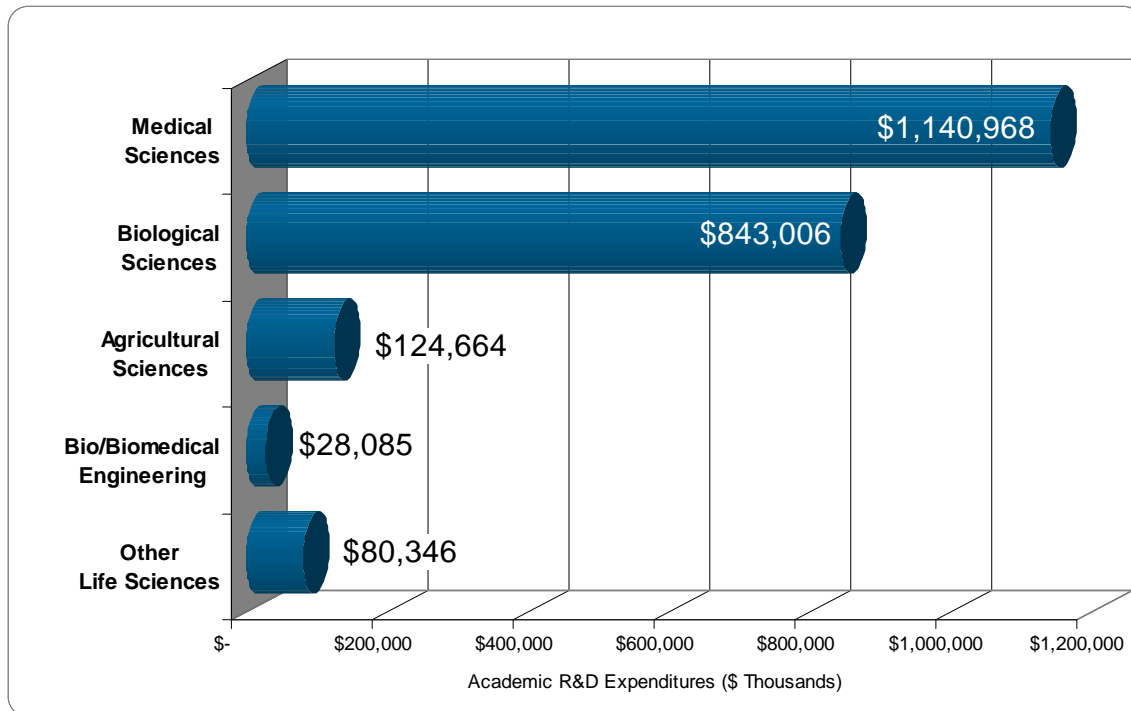
## Additional Bioscience Performance Metrics

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

	Texas	United States	Rank
Academic R&D Expenditures, FY 2006			
Total (\$ thousands)	\$3,270,728	\$47,760,402	3
Bioscience R&D (\$ thousands)	\$2,217,069	\$29,307,628	3
Bioscience Share of Total R&D	67.8%	61.4%	
Bioscience R&D Per Capita	\$94.72	\$98.10	
Change in Bioscience R&D FY 2002–2006	31.5%	36.9%	
NIH Funding, FY 2007			
Total (\$ thousands)	\$1,083,465	\$21,066,389	5
Per Capita Funding	\$45.32	\$69.84	
Change in Funding, FY 2002–2007	5.9%	11.2%	
Higher Education Degrees in Bioscience Fields, AY 2006	9,096	143,433	3
Employment in Bioscience-related Occupations, 2006	34,170	588,520	4
Bioscience Venture Capital Investments, 2002-2007 (\$ millions)	\$1,338.3	\$51,260.9	9
Bioscience and Related Patents, 2002-2007	3,301	121,817	9

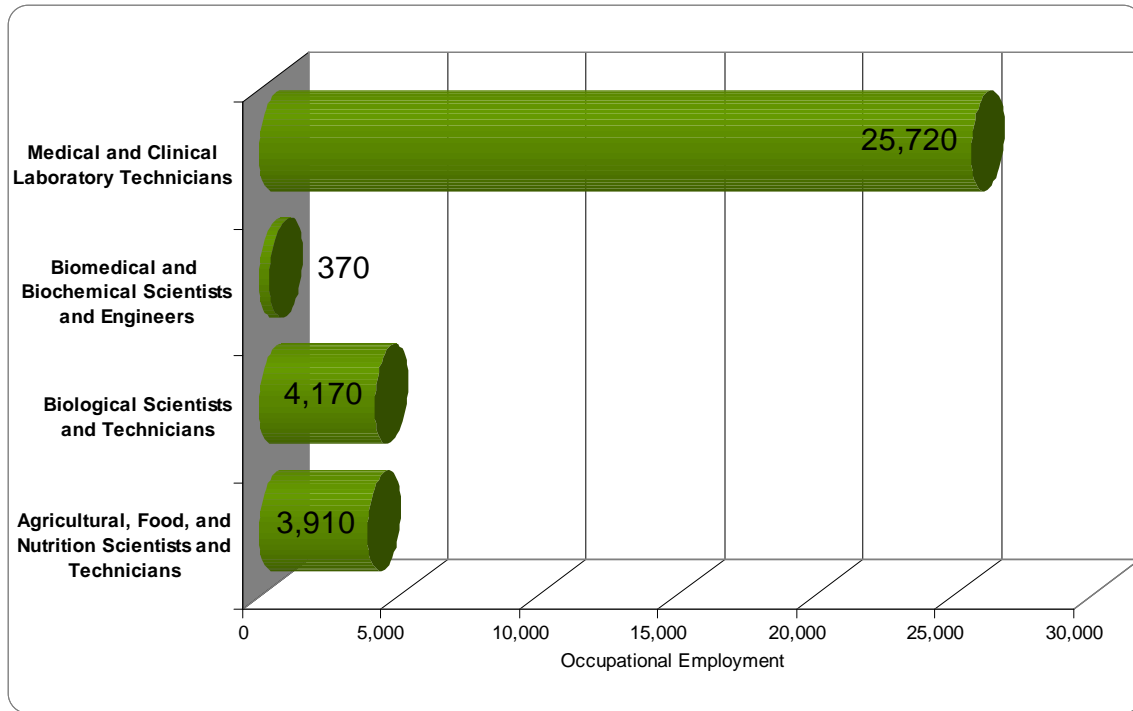
## Bioscience R&D Base

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

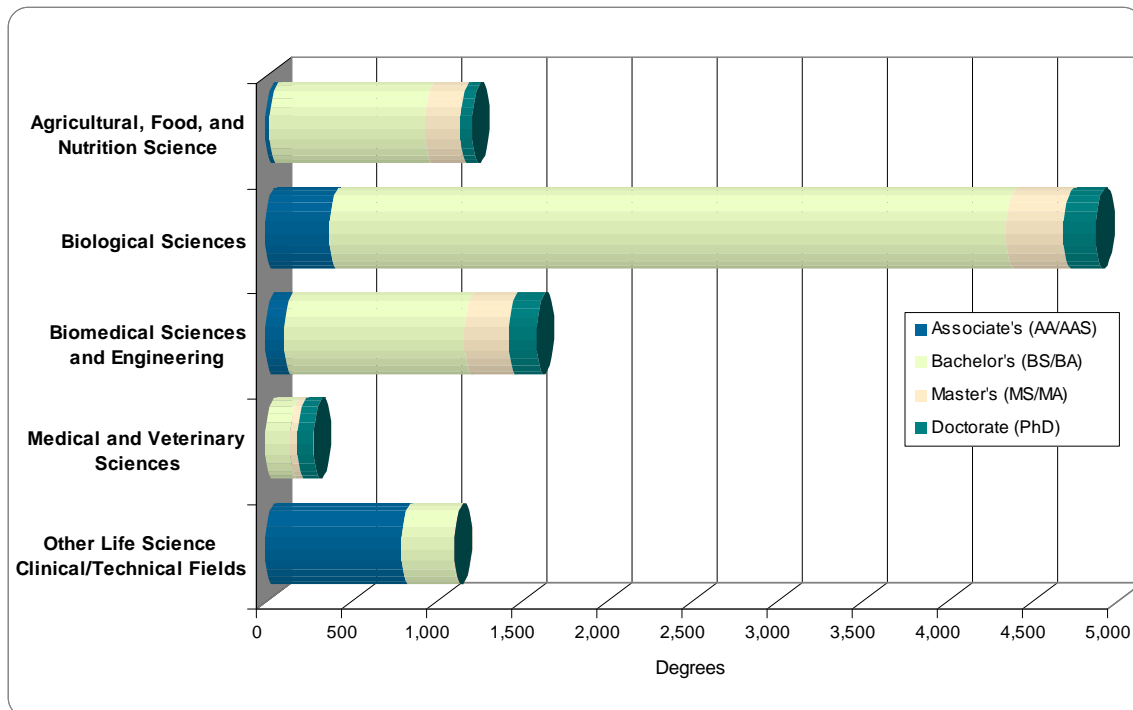


## Bioscience Talent Base

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

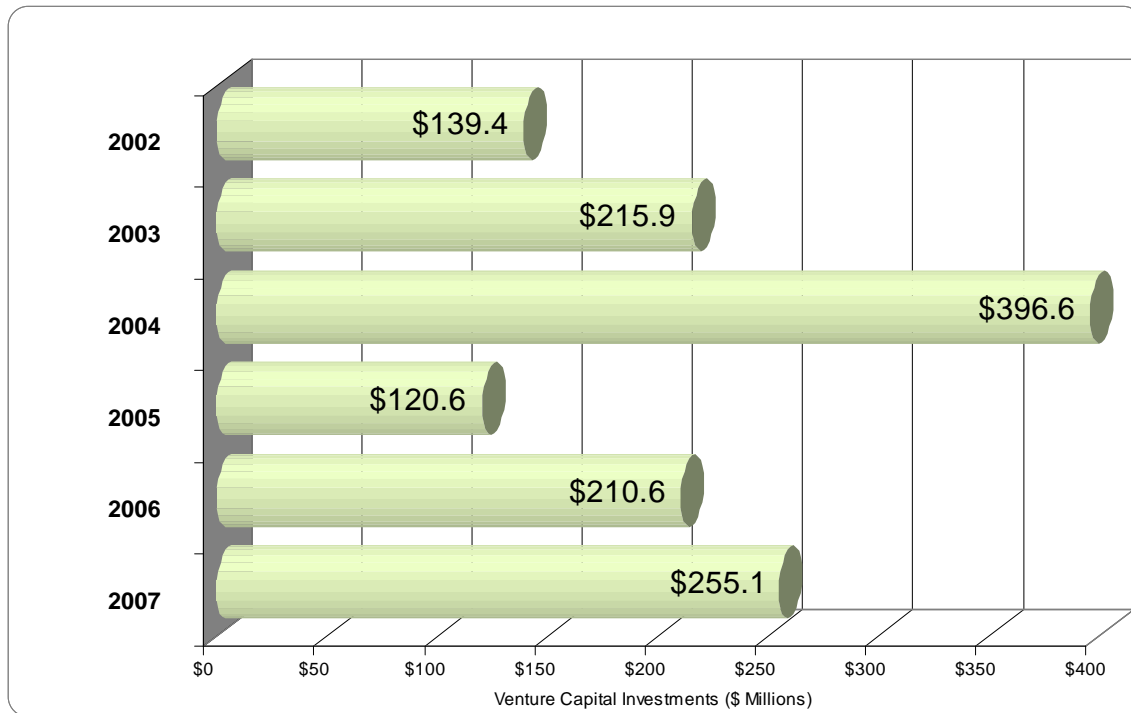


### Bioscience-related Degrees in Texas, AY 2006

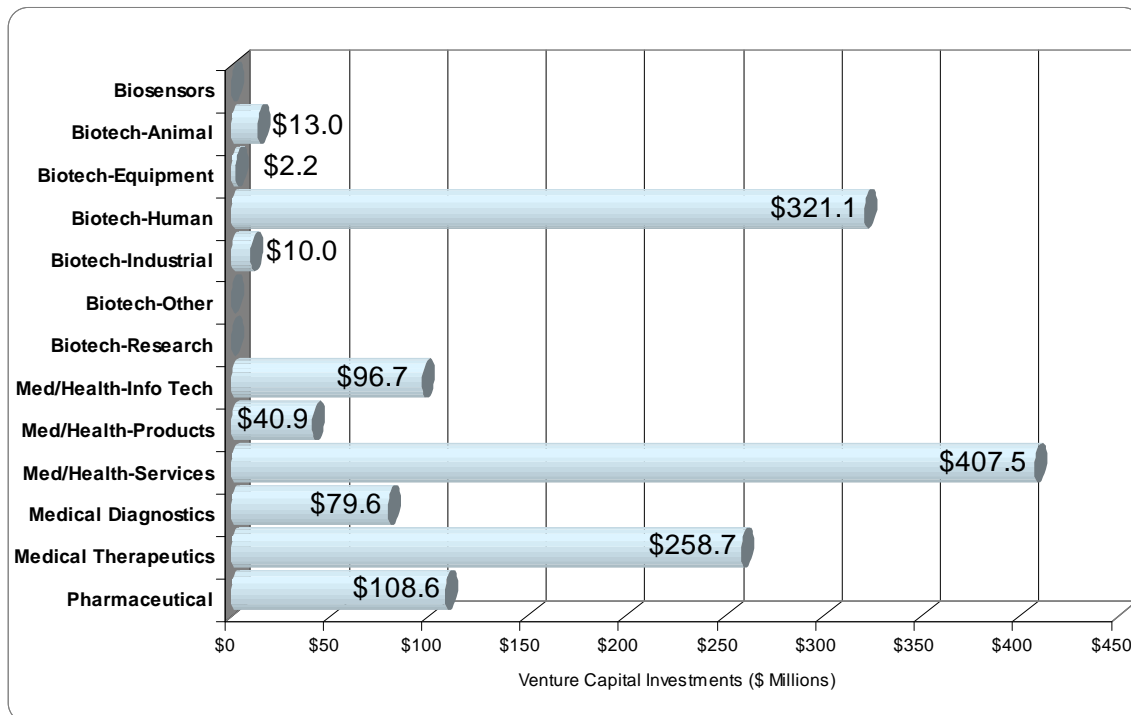


## Bioscience Venture Capital

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

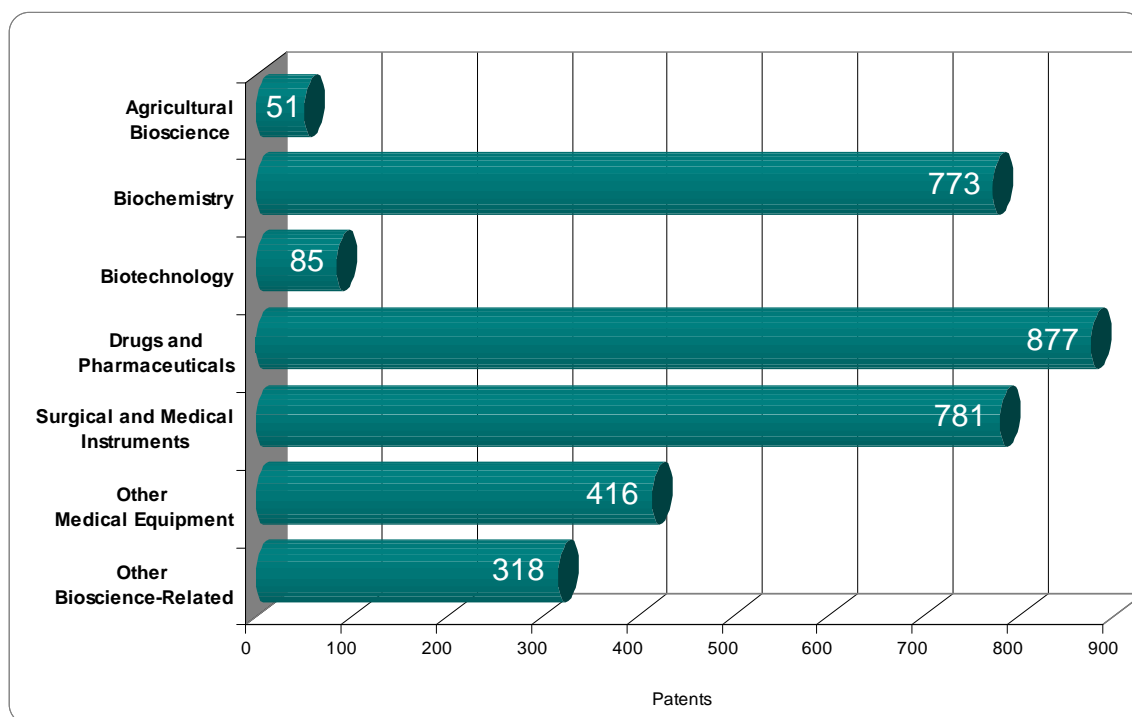


### Bioscience-related Venture Capital Investments in Texas by Segment, 2002–2007



## Bioscience Patents

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



## State Bioscience Contacts

### State Agency Contact:

Mark M. Ellison  
Director  
Texas Emerging Technology Fund  
1100 San Jacinto  
Austin, TX 78701  
(512) 463-2000  
[mark.ellison@governor.state.tx.us](mailto:mark.ellison@governor.state.tx.us)

### State Bio Association Contact:

Thomas Kowalski  
President  
Texas Healthcare and Bioscience Institute  
815 Brazos Street, Suite 310  
Austin, TX 78701  
(512) 708-8424  
[tk@thbi.com](mailto:tk@thbi.com)

### 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.