

## MISSOURI

Missouri has employment specializations in agricultural feedstock and chemicals (location quotient of 1.78) and in research, testing, and medical laboratories (1.21), with the latter subsector growing much faster than the national average. Academic bioscience research expenditures were \$742 million, a considerably higher share of total academic research than the national average. A total of \$205 million in bioscience venture capital was invested during the past 6 years across a wide range of sectors led by human biotechnology, medical/health services, and medical therapeutics. In the same period, there were 2,355 patents issued, predominantly in drugs and pharmaceuticals and biochemistry.

#### Major Industry Developments and Recent Successes

- Missouri's leading ag biotech company, **Monsanto**, and German global leader BASF announced a broad R&D commercialization agreement in plant biotechnology that could result in a \$1.5 billion value over the life of the agreement.
- **Proteon Therapeutics**, a drug development firm, received a \$12 million second round of financing. The company, which received assistance from Missouri's Quality Jobs Program, will create 30 new jobs and invest \$10 million in a facility and equipment.
- **The Center of Research, Technology and Entrepreneurial Exchange (CORTEX)** in St. Louis has received approval to obtain \$15 million in tax credits to help it build and populate a \$200 million life-sciences space.

### Recent State Initiatives

Missouri's **Lewis and Clark Discovery Initiative (LCDI)**, signed into law in May 2007, will provide \$335 million in funding for facility and infrastructure improvements at Missouri's colleges and universities between 2007 and 2012. These funds will be used to construct new research labs, teaching facilities, business incubators, and a plant science research center. Funds provided by the initiative will be augmented by more than \$150 million in federal and local matching money, resulting in a total investment of approximately \$470 million.

In addition to the funds targeted toward research and education, \$15 million was earmarked for the Missouri Technology Corporation (MTC) for various programs designed to improve commercialization of Missouri technologies. Bioscience-related initiatives funded include the following:

- **MTC Entrepreneur Pipeline Program/Plant and Ag Biotech Seed Capital Co-Investment Fund.** LCDI allocated \$3 million for seed capital co-investment and the establishment of an entrepreneurial pipeline.
- **Medical Device Innovation Program**, a \$350,000 program designed to enhance collaboration between physicians, engineers, and business people to create new entrepreneurial opportunities.
- **Opportunity Fund for Bioenergy Research Center**, which received \$3.25 million that can be used to enhance Missouri's competitive position in seeking major federal research facilities.
- **Animal Health and Nutrition Center and Animal Health Workforce Development Initiative.** These efforts are being undertaken in partnership with Missouri universities and leading companies in the St. Joseph area, which has a large cluster of animal health-related companies.

For additional information on Missouri's bioscience policies and programs, please see <http://www.missouritechnology.com> and <http://www.mobio.org>.

## Bioscience Industry Base, 2006

Industry Subsector	Missouri		United States	
	2006	2001-06 Change	2006	2001-06 Change
<b>Agricultural Feedstock &amp; Chemicals</b>				
Establishments	94	13.3%	2,183	3.8%
Employment	3,792	-9.1%	105,846	-6.1%
Location Quotient	1.78		n.a.	
Direct-Effect Employment Multiplier	6.62		11.22	
Total Employment Impact	25,110		1,214,709	
Average Annual Wage	\$59,864		\$67,870	
<b>Drugs &amp; Pharmaceuticals</b>				
Establishments	74	-11.9%	2,654	1.9%
Employment	5,360	1.9%	317,149	4.0%
Location Quotient	0.84		n.a.	
Direct-Effect Employment Multiplier	5.73		9.92	
Total Employment Impact	30,693		2,880,242	
Average Annual Wage	\$65,889		\$86,892	
<b>Medical Devices &amp; Equipment</b>				
Establishments	254	-11.2%	15,215	0.3%
Employment	4,923	3.1%	422,993	-0.9%
Location Quotient	0.58		n.a.	
Direct-Effect Employment Multiplier	3.02		4.85	
Total Employment Impact	14,877		1,980,128	
Average Annual Wage	\$42,219		\$59,441	
<b>Research, Testing, &amp; Medical Laboratories</b>				
Establishments	386	30.3%	22,857	32.7%
Employment	10,905	56.5%	449,991	17.8%
Location Quotient	1.21		n.a.	
Direct-Effect Employment Multiplier	2.64		3.25	
Total Employment Impact	28,802		1,440,500	
Average Annual Wage	\$84,654		\$71,284	
<b>Total Private Sector</b>				
Establishments	162,266	5.5%	8,575,730	10.2%
Employment	2,280,373	1.7%	113,463,842	3.1%
Average Annual Wage	\$37,378		\$42,272	

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

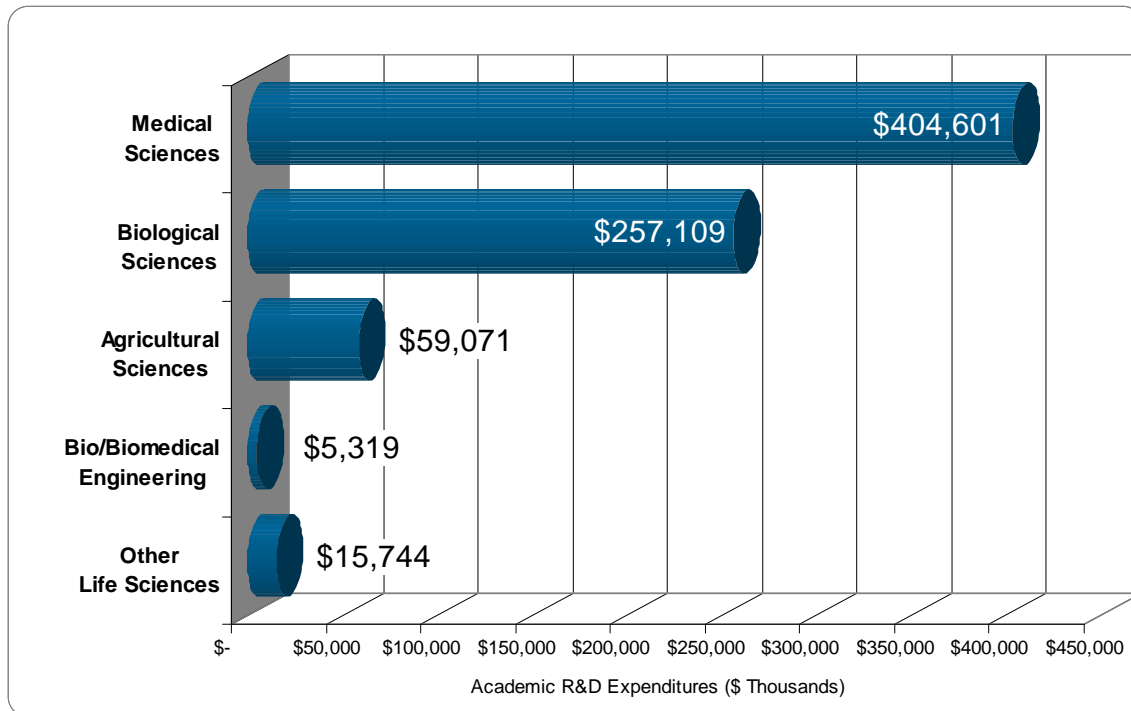
## Additional Bioscience Performance Metrics

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

	Missouri	United States	Rank
Academic R&D Expenditures, FY 2006			
Total (\$ thousands)	\$897,580	\$47,760,402	16
Bioscience R&D (\$ thousands)	\$741,844	\$29,307,628	12
Bioscience Share of Total R&D	82.6%	61.4%	
Bioscience R&D Per Capita	\$127.08	\$98.10	
Change in Bioscience R&D FY 2002–2006	29.7%	36.9%	
NIH Funding, FY 2007			
Total (\$ thousands)	\$473,058	\$21,066,389	12
Per Capita Funding	\$80.47	\$69.84	
Change in Funding, FY 2002–2007	-1.9%	11.2%	
Higher Education Degrees in Bioscience Fields, AY 2006	2,841	143,433	15
Employment in Bioscience-related Occupations, 2006	11,640	588,520	18
Bioscience Venture Capital Investments, 2002-2007 (\$ millions)	\$204.9	\$51,260.9	24
Bioscience and Related Patents, 2002-2007	2,355	121,817	19

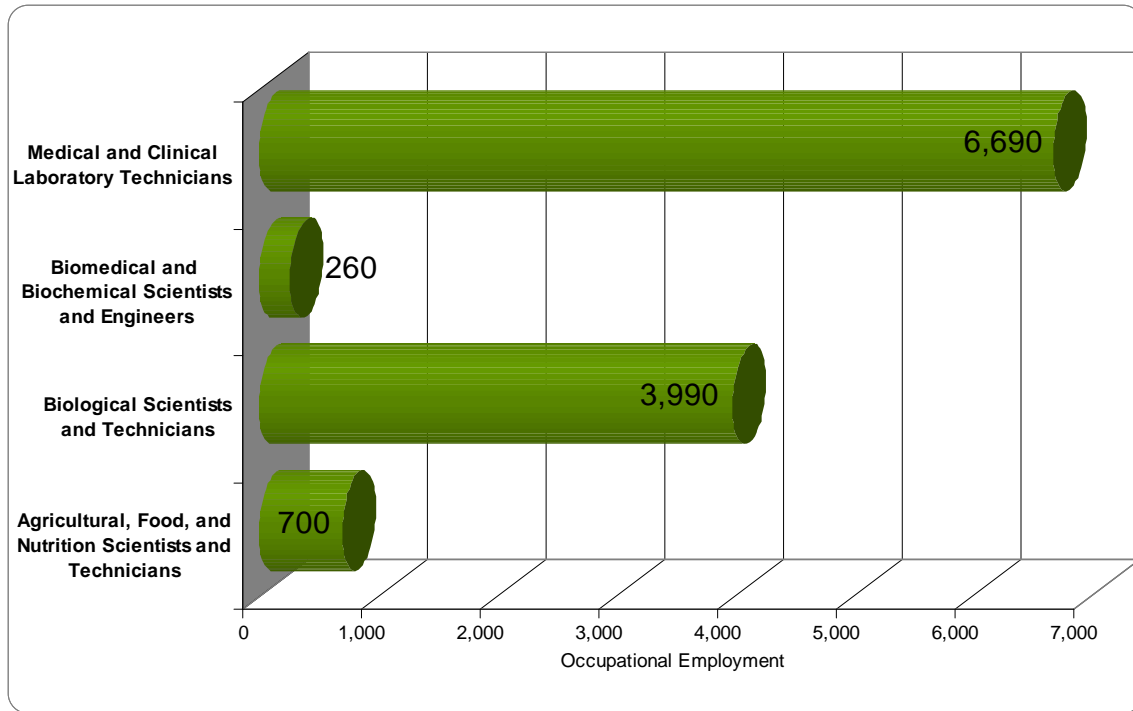
## Bioscience R&D Base

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

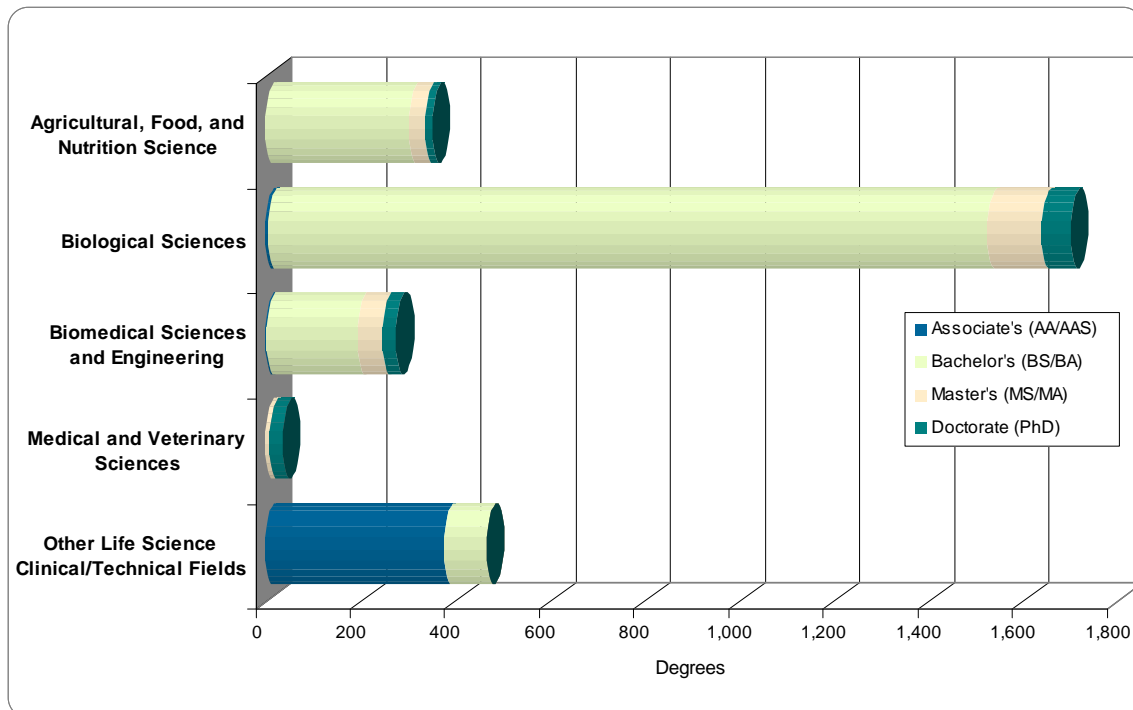


## Bioscience Talent Base

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

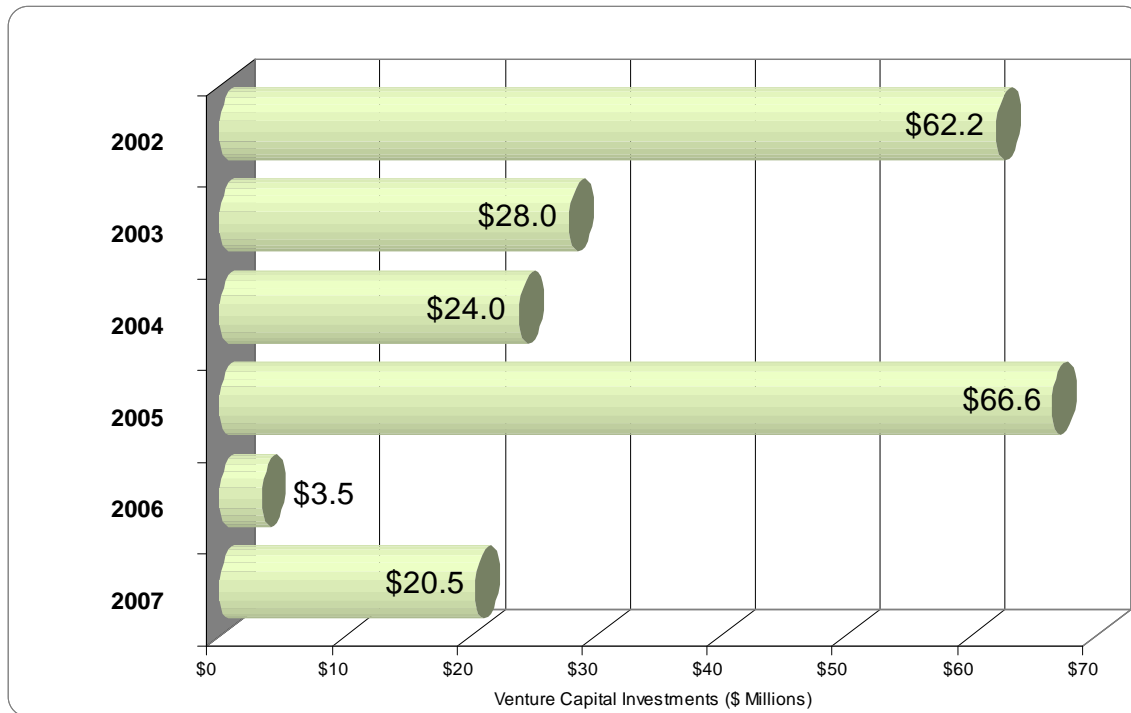


### Bioscience-related Degrees in Missouri, AY 2006

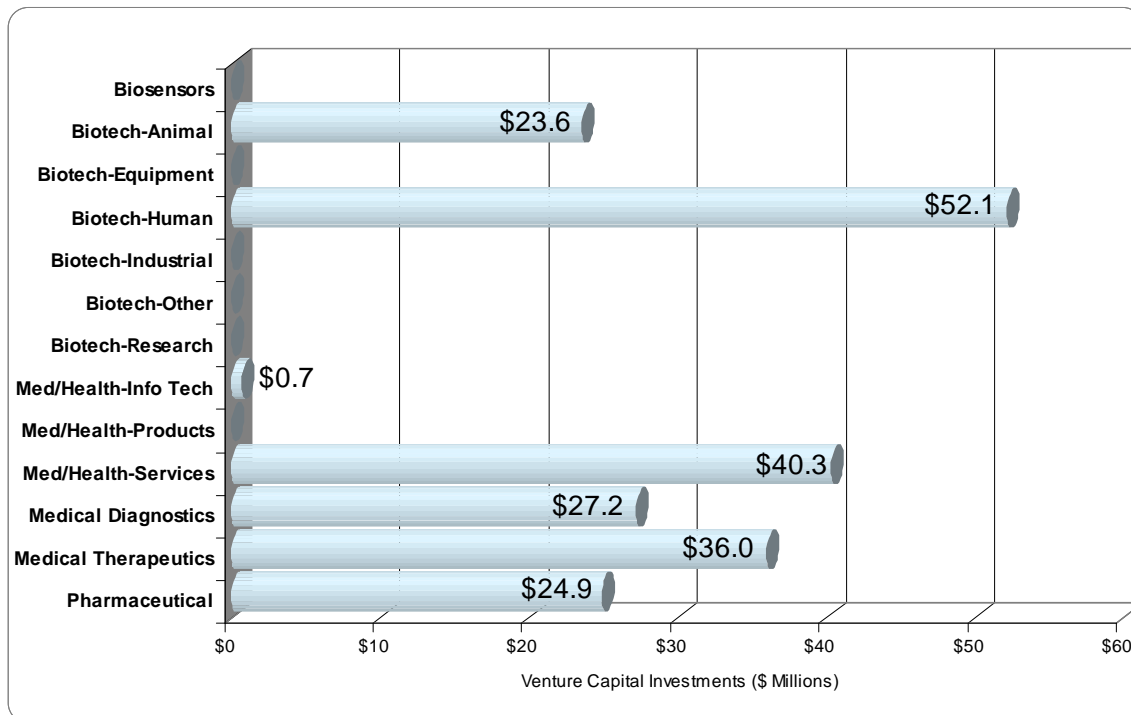


## Bioscience Venture Capital

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

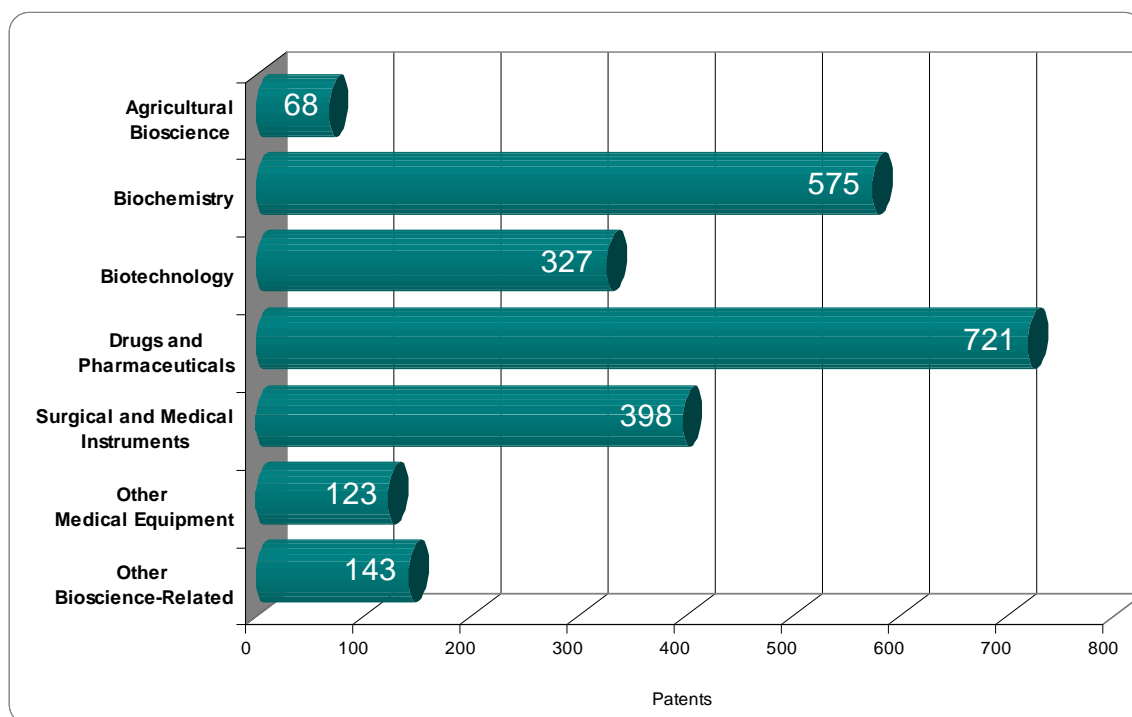


### Bioscience-related Venture Capital Investments in Missouri by Segment, 2002–2007



## Bioscience Patents

### Bioscience-related Patents by Classification Group in Missouri, 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.