

ARKANSAS

Arkansas has an employment specialization in the agricultural feedstock and chemicals subsector (location quotient of 2.10). In both drugs and pharmaceuticals and research, testing, and medical laboratories, the State has added about 20 percent to its job base since 2001. Bioscience research expenditures at academic institutions have increased at an above-average pace since 2002. Academic R&D in 2006 was led by medical sciences (\$67.5 million) and agricultural sciences (\$62.2 million). State venture capital investments over the recent 6-year period totaled \$60.8 million, with the majority invested in the medical/health services sector.

Recent State Initiatives

In 2008, Arkansas Science & Technology Authority (ASTA) released \$250,000 in initial funds toward development of an **Arkansas Research Alliance**, based on successful models in Georgia and elsewhere. The Alliance will establish programs to build the state's R&D base by recruiting eminent scholars and undertaking other initiatives. The Authority also increased the maximum grant under its **Technology Development Program** to \$100,000 and increased to 100 percent the maximum credit available under the **Research & Development Tax Credit Program** for qualified research expenditures at universities.

In 2007, ASTA received a \$9 million Experimental Program to Stimulate Competitive Research (EPSCoR) grant from the National Science Foundation, matched by \$4.5 million from the state, for university-based research with potential for commercial applications in plant-based bioproduction and wireless nanobio sensors.

Arkansas continued annual allocations of about \$10 million from its tobacco settlement funds to the **Arkansas Biosciences Institute**, a nonprofit coordinating consortium that reported that its five partner institutions had leveraged \$32.7 million in extramural awards in 2006–2007.

For additional information on Arkansas's bioscience policies and programs, please see <http://www.asta.ar.gov>.

Major Industry Developments and Recent Successes

- **LITMUS**, a Little Rock–based technology development company, announced in 2007 that its partnership with FDA's National Center for Toxicological Research had achieved new breakthroughs in rapid testing for foodborne pathogens such as *Salmonella*, *Listeria*, *Campylobacter*, and *E. coli*.
- **Balm Innovations**, which has licensed formulations for tea tree oil stemming from pharmacy research at the University of Arkansas for Medical Sciences, raised \$300,000 in late 2006 from the Fund for Arkansas' Future, a member-managed angel-capital investment fund.
- The Nanotechnology Center at University of Arkansas at Little Rock formed its first spin-off company, **Orlumet**, which is targeting a matrix of nanomaterials that promote bone growth.

Bioscience Industry Base, 2006

Industry Subsector	Arkansas		United States	
	2006	2001-06 Change	2006	2001-06 Change
Agricultural Feedstock & Chemicals				
Establishments	29	-33.8%	2,183	3.8%
Employment	1,908	-3.0%	105,846	-6.1%
Location Quotient	2.10		n.a.	
Direct-Effect Employment Multiplier	6.71		11.22	
Total Employment Impact	12,805		1,214,709	
Average Annual Wage	\$52,866		\$67,870	
Drugs & Pharmaceuticals				
Establishments	12	71.4%	2,654	1.9%
Employment	127	19.8%	317,149	4.0%
Location Quotient	0.05		n.a.	
Direct-Effect Employment Multiplier	3.56		9.92	
Total Employment Impact	452		2,880,242	
Average Annual Wage	\$35,079		\$86,892	
Medical Devices & Equipment				
Establishments	102	11.9%	15,215	0.3%
Employment	2,655	-9.4%	422,993	-0.9%
Location Quotient	0.73		n.a.	
Direct-Effect Employment Multiplier	2.47		4.85	
Total Employment Impact	6,553		1,980,128	
Average Annual Wage	\$31,367		\$59,441	
Research, Testing, & Medical Laboratories				
Establishments	137	39.8%	22,857	32.7%
Employment	1,407	22.6%	449,991	17.8%
Location Quotient	0.36		n.a.	
Direct-Effect Employment Multiplier	1.94		3.25	
Total Employment Impact	2,727		1,440,500	
Average Annual Wage	\$50,305		\$71,284	
Total Private Sector				
Establishments	77,059	12.0%	8,575,730	10.2%
Employment	973,668	3.0%	113,463,842	3.1%
Average Annual Wage	\$31,831		\$42,272	

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

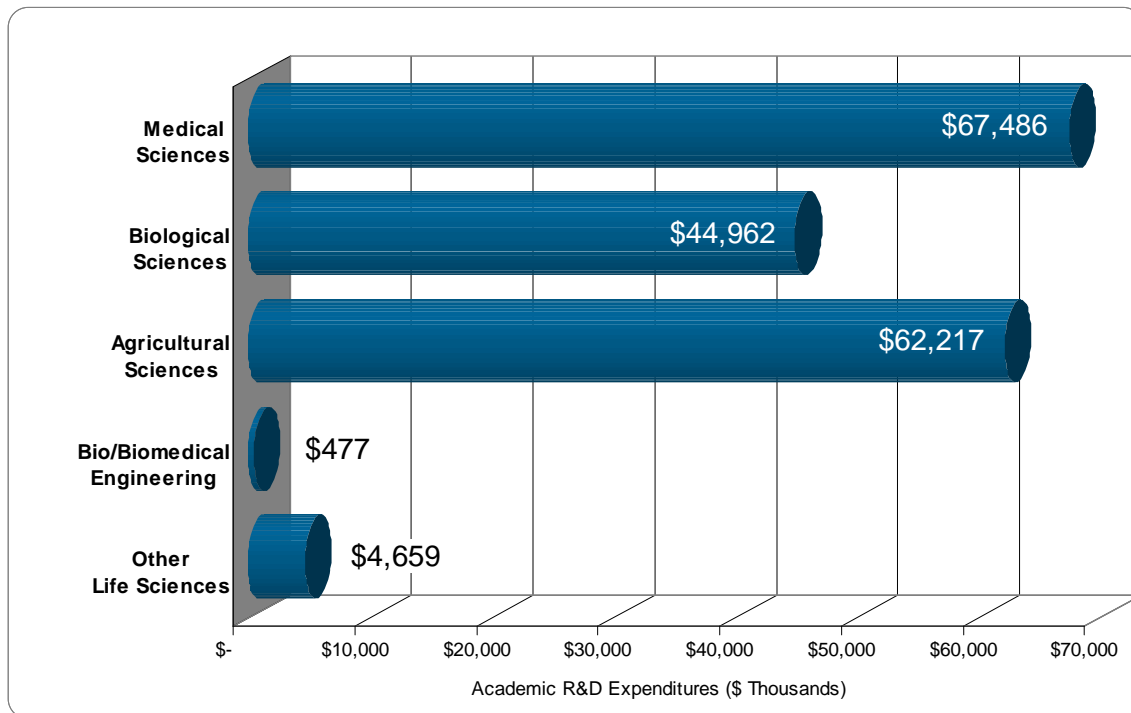
Additional Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

	Arkansas	United States	Rank
Academic R&D Expenditures, FY 2006			
Total (\$ thousands)	\$237,233	\$47,760,402	39
Bioscience R&D (\$ thousands)	\$179,801	\$29,307,628	34
Bioscience Share of Total R&D	75.8%	61.4%	
Bioscience R&D Per Capita	\$64.01	\$98.10	
Change in Bioscience R&D FY 2002–2006	70.9%	36.9%	
NIH Funding, FY 2007			
Total (\$ thousands)	\$59,539	\$21,066,389	42
Per Capita Funding	\$21.00	\$69.84	
Change in Funding, FY 2002–2007	12.0%	11.2%	
Higher Education Degrees in Bioscience Fields, AY 2006	1,190	143,433	36
Employment in Bioscience-related Occupations, 2006	3,570	588,520	36
Bioscience Venture Capital Investments, 2002-2007 (\$ millions)	\$60.8	\$51,260.9	34
Bioscience and Related Patents, 2002-2007	908	121,817	31

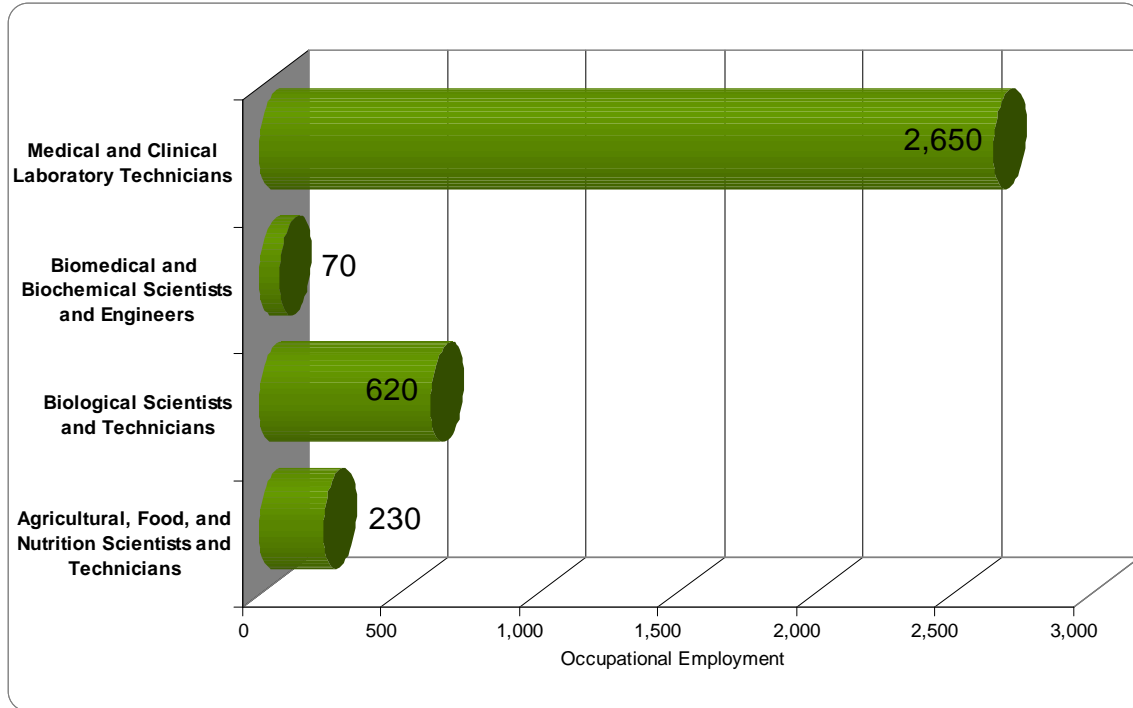
Bioscience R&D Base

Bioscience Academic R&D Expenditures in Arkansas, FY 2006

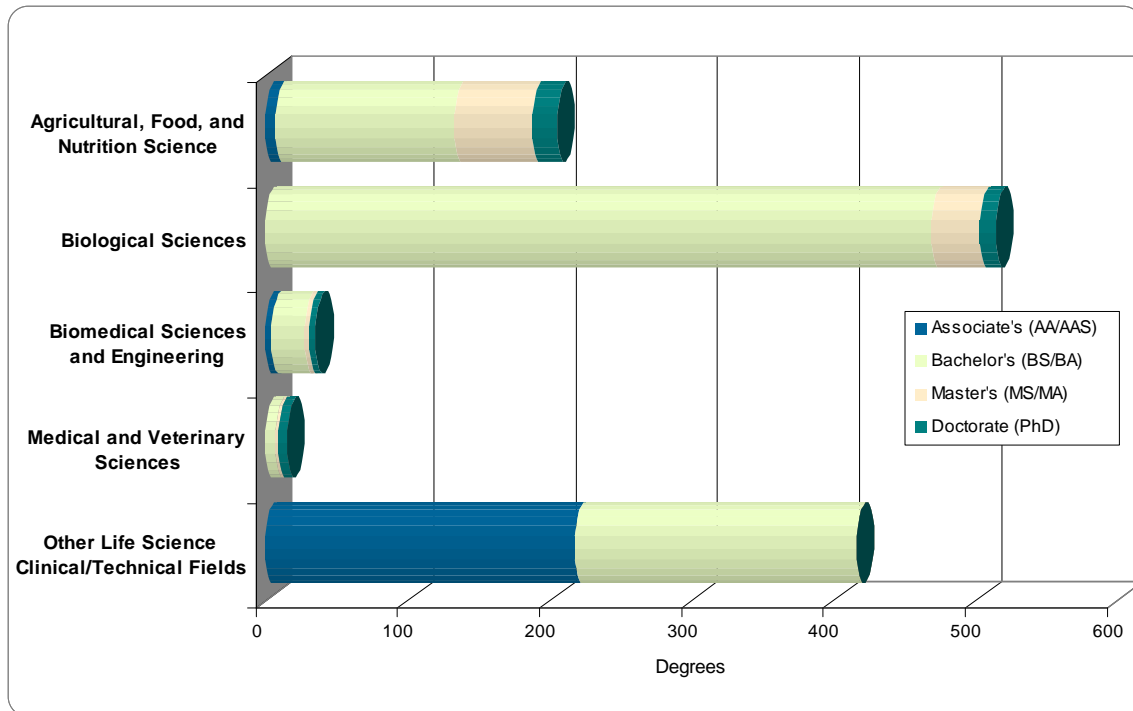


Bioscience Talent Base

Bioscience-related Occupational Employment in Arkansas, 2006

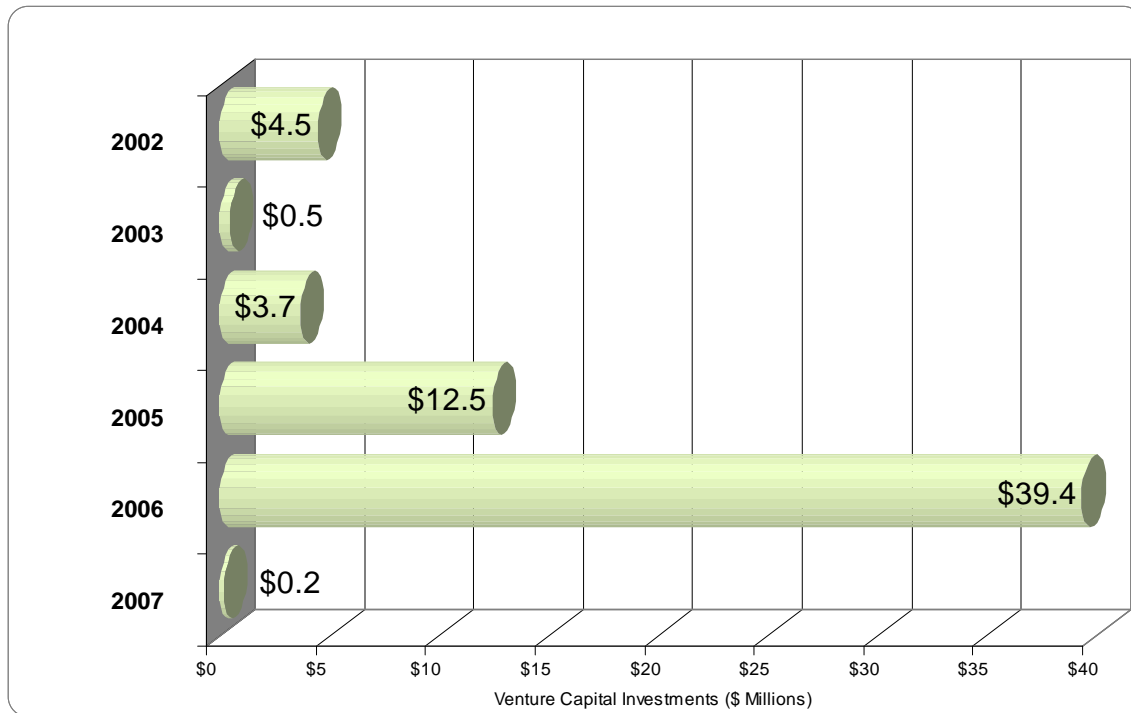


Bioscience-related Degrees in Arkansas, AY 2006

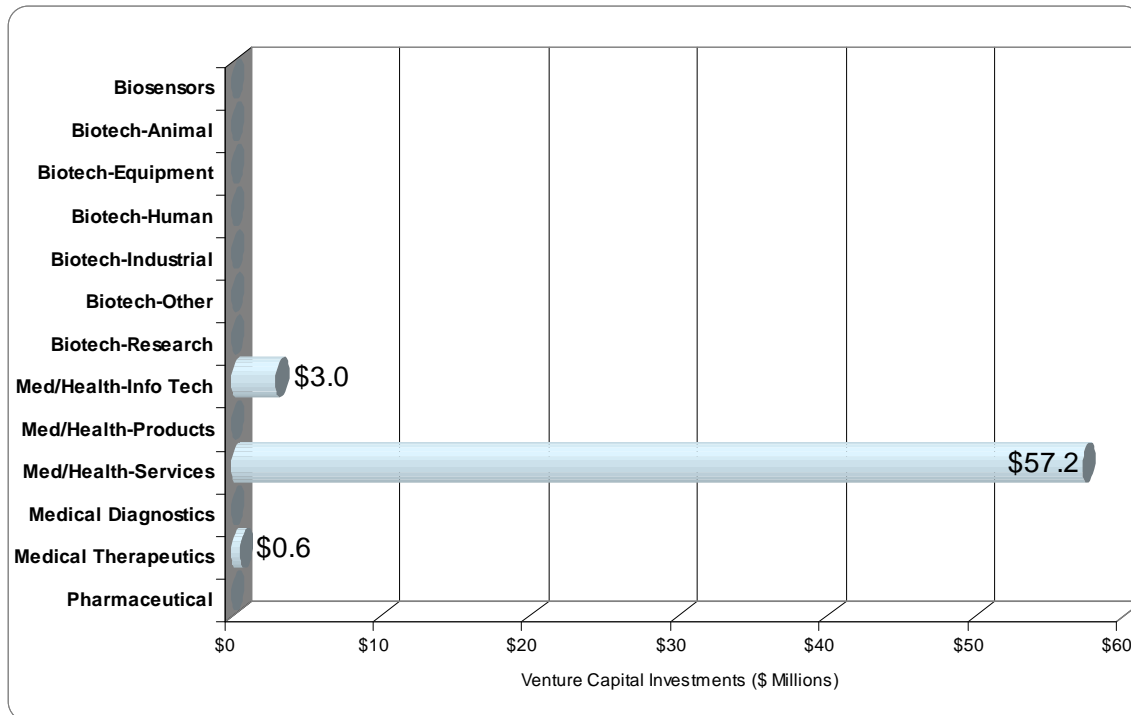


Bioscience Venture Capital

Bioscience-related Venture Capital Investments in Arkansas, 2002–2007

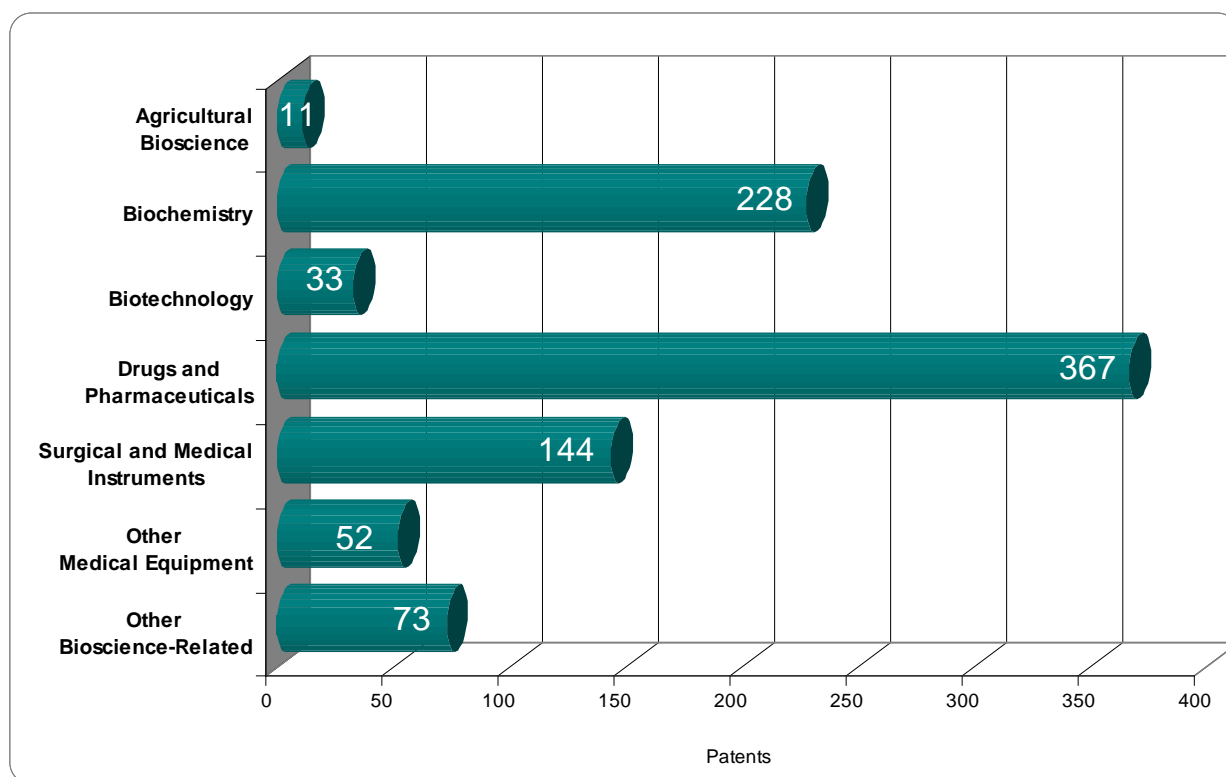


Bioscience-related Venture Capital Investments in Arkansas by Segment, 2002–2007



Bioscience Patents

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



State Bioscience Contacts

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n/a

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 VentureExpert 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.