



## Overview and Summary of Recent Initiatives

The life sciences are among the six sectors specially targeted by the Arkansas Consolidated Incentives Act of 2003, administered by the Department of Economic Development together with the **Arkansas Science and Technology Authority (ASTA)**. The consolidated act integrates several previously stand-alone tax credits for research and bioscience training within a comprehensive initiative for discretionary incentives.

The state's bioscience R&D strategy is defined by the **Arkansas Bioscience Institute (ABI)**, a collaborative of five public and private institutions working on agricultural, bioengineering, and biomedical topics. The ABI research program is funded by 22.8 percent of payments made to the state's Tobacco Settlement Trust.

Since the last BIO report, the Arkansas Tobacco Settlement Commission rejected an outside evaluator's recommendation to cut the ABI allocation by 20 percent. The **Arkansas Development Finance Authority (ADFA)** also brought on line state investments in an in-state pre-seed fund and several later-stage venture funds that agreed to open operations in Arkansas and consider in-state deals.

## Building Bioscience R&D Capacity

### Recent state investments in facilities

Under the tobacco-settlement allocation approved by voters in 2000, the first \$5 million of funding allocated to ABI is used to retire \$60 million in bonds that were used to establish the Boozman College of Public Health and to create two major research facilities.

In 2004, Arkansas State University (ASU) in Jonesboro opened a \$20 million, 88,000-square-foot laboratory facility dedicated to work funded by ABI. This joins an earlier \$25 million, 140,000-square-foot **Biomedical Research Center** at the University of Arkansas for Medical Sciences in Little Rock (UAMS). ABI program funds have also been used to build or improve core research laboratories at several of the participating institutions (UAMS, ASU, University of Arkansas at Fayetteville, and University of Arkansas Division of Agriculture).

The public universities are exploring revenue-bond alternatives to a \$150 million general obligation bond for higher-education upgrades that was narrowly defeated by voters in the 2005 election.

## Research programs

The tobacco allocation to ABI generally brings in \$12 million to \$13 million a year. In the most recently reported year, ABI supported 115 research projects, of which 30 percent were collaborations among more than one of the participating institutions, such as collaborations in agricultural medicine.

Separately, ASTA operates a \$1 million **Research Matching Fund** designed to assist institutions in attracting major federal awards that carry matching requirements.

## Faculty development programs

ABI funds have also been used as part of 12 faculty recruitments in the most recent year, bringing the cumulative total of such uses to 25.

## Encouraging Academic/Industrial Interaction

Under the state's Consolidated Incentive Act, tax credits are available for companies that perform university-based research in areas targeted by ASTA or funded through its applied-research grant.

## Moving Technology into the Marketplace

### Commercializing university technology

ASTA offers repayable grants up to \$50,000 through a **Technology Development Program**, funded at \$1.6 million in 2005. These awards are intended for researchers at universities or federal laboratories or small businesses commercializing technology. They are repayable by a 5 percent royalty on net sales for a maximum of 10 years. ASTA also offers a smaller (up to \$3,250) outright grant program for similar technology transfer purposes.

### Supporting bioscience entrepreneurs and emerging companies

Based at the Arkansas Research and Technology Park at Fayetteville (otherwise not bioscience targeted) is the **Virtual Incubation Company**, a nonprofit technology accelerator that charges accredited investors \$25,000 to \$100,000 to connect them to start-up-stage enterprise including in the biosciences. The intent is to provide the companies with advice and the accredited investors with access to pre-screened companies in which they may separately invest.

## Making Capital Available

### Pre-seed and seed capital

Pre-seed investments are available from ASTA's internal **Seed Capital Investment Fund**, which can provide up to \$500,000 in working capital from a revolving fund of \$4.8 million.

Pre-seed investments are also made by the **Fund for Arkansas Future**, a \$5.25 million formal angel-investor fund that includes \$100,000 in investment from the **ADFA** under its Arkansas Institutional Fund program, a \$70 million tax-credit-backed fund of funds created in 2001.

Investors in the Fund for Arkansas Future are eligible for a discretionary 33 percent tax credit on certain investments administered by the Commerce Capital Development Company, one of the subsidiaries of the

Arkansas Capital Corporation Group, a nonprofit development financing affiliate of ADFA linked by board membership to ASTA. This credit may offset up to half income-tax liability, can be carried forward 8 years, and is transferable even by nonprofit organizations.

### Venture capital

Early-stage venture investments are available from **Diamond State Ventures**, a \$56 million Small Business Investment Company (SBIC) capitalized by another affiliate of the Arkansas Capital Corporation Group.

Additionally, the Arkansas Institutional Fund, a fund of funds created in 2001 (see above), has invested \$4.5 million in **Prolog II**, a \$51 million early-stage bioscience venture fund based in St. Louis. Prolog agreed to open an Arkansas office and set up an in-state advisory structure.

## Providing Space for Bioscience Companies

### Incubators

The ABI-funded UAMS building that houses the university's **Arkansas BioVentures** business accelerator also includes 12 wet-lab suites over 16,500 square feet housing 11 currently incubating spin-offs or licensees and a cGMP laboratory open to academic and start-up use.

## Addressing Talent Needs

### Recruiting management talent

The Little Rock Chamber of Commerce has created a **Biotechnology Task Force** that is designing a program to recruit and retain bioscience management.

## Contacts

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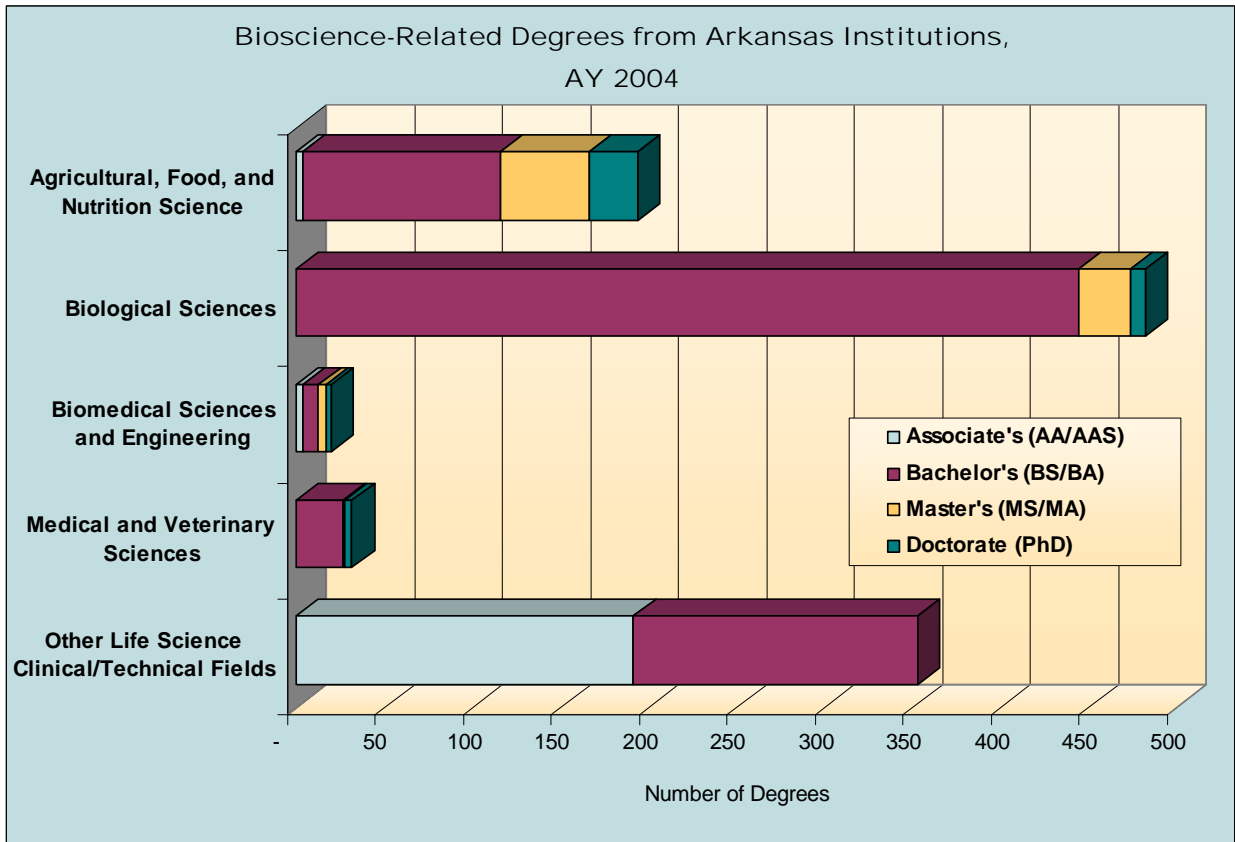
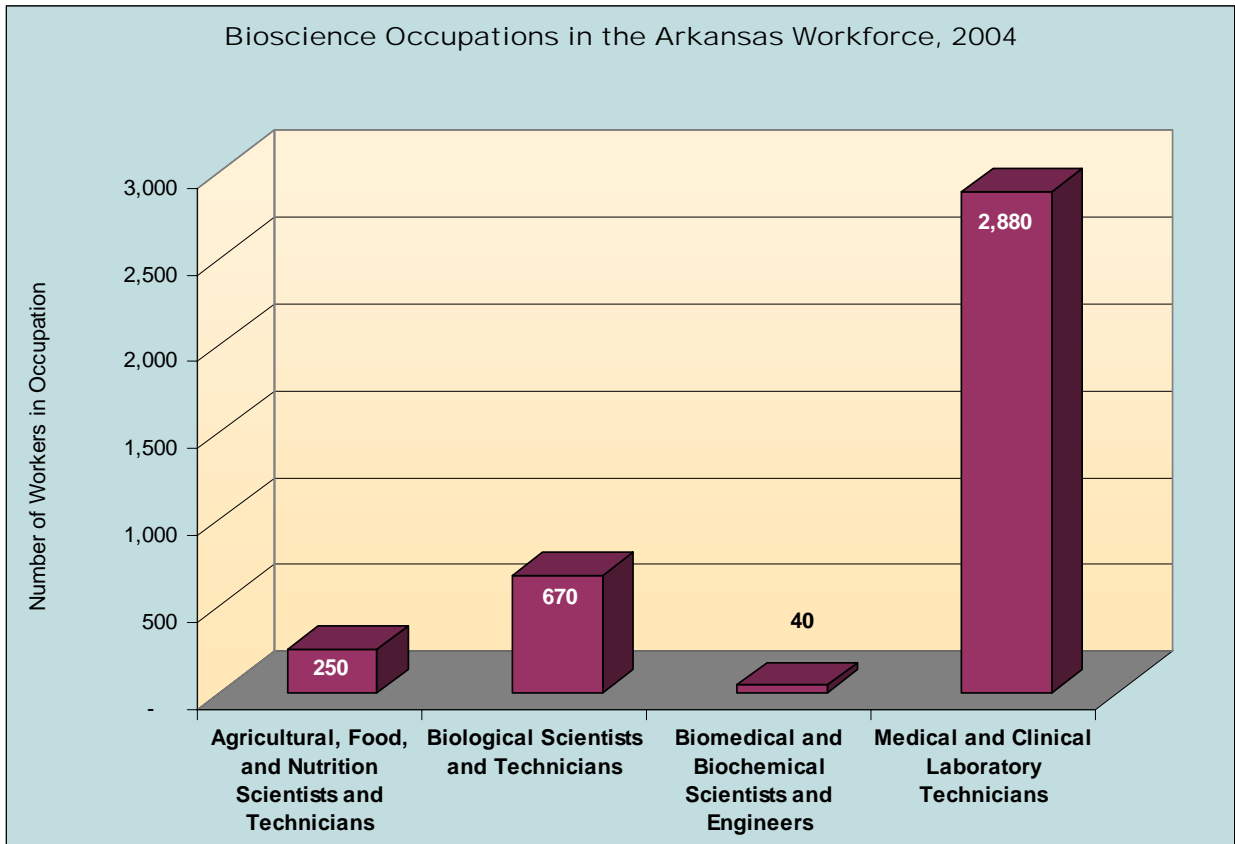
The planned statewide Arkansas Biotechnology Association is currently inactive. The state BIO affiliate is the Little Rock Regional Chamber of Commerce, which staffs a Biotechnology Task Force.

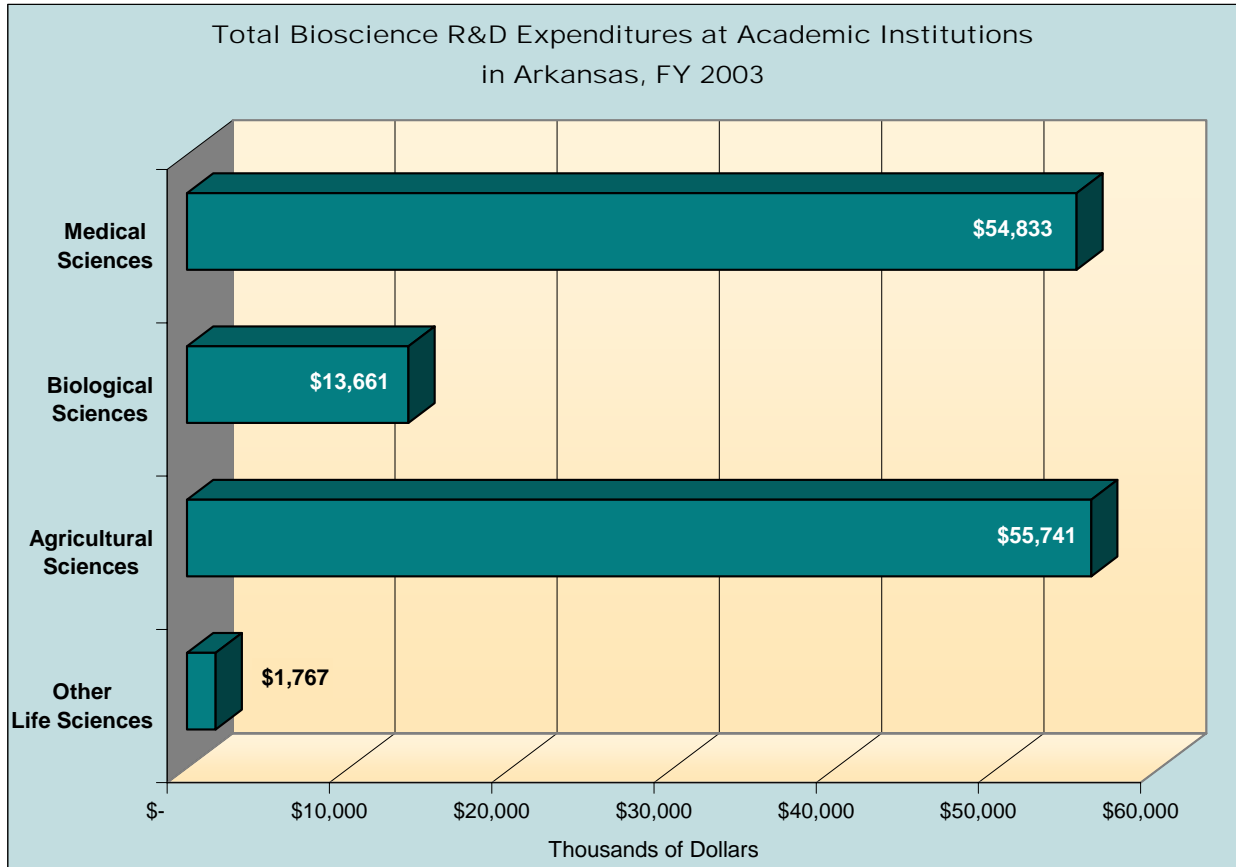
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Industry Subsector	Arkansas	United States
<b>Agricultural Feedstock &amp; Chemicals</b>		
Establishments 2004	34	2,111
2001-2004 Establishment % Change	-22.4%	0.4%
Employment 2004	1,676	104,893
2001-2004 Employment % Change	-14.8%	-6.9%
Share of U.S. Employment	1.6%	100.0%
Location Quotient	1.85	n.a.
Average Annual Wage 2004	\$48,454	\$63,383
Direct-Effect Employment Multiplier	6.23	10.91
Total Employment Impact	10,441	1,212,094
<b>Drugs &amp; Pharmaceuticals</b>		
Establishments 2004	13	2,589
2001-2004 Establishment % Change	85.7%	-0.6%
Employment 2004	128	313,207
2001-2004 Employment % Change	20.8%	2.7%
Share of U.S. Employment	0.0%	100.0%
Location Quotient	0.05	n.a.
Average Annual Wage 2004	\$33,279	\$79,303
Direct-Effect Employment Multiplier	3.32	9.51
Total Employment Impact	425	2,731,321
<b>Medical Devices &amp; Equipment</b>		
Establishments 2004	94	15,190
2001-2004 Establishment % Change	3.1%	0.2%
Employment 2004	2,641	411,460
2001-2004 Employment % Change	-9.9%	-3.6%
Share of U.S. Employment	0.6%	100.0%
Location Quotient	0.74	n.a.
Average Annual Wage 2004	\$31,922	\$56,449
Direct-Effect Employment Multiplier	2.27	4.56
Total Employment Impact	5,994	1,817,705
<b>Research, Testing, &amp; Medical Laboratories</b>		
Establishments 2004	120	20,565
2001-2004 Establishment % Change	22.8%	19.4%
Employment 2004	1,251	413,550
2001-2004 Employment % Change	9.0%	8.2%
Share of U.S. Employment	0.3%	100.0%
Location Quotient	0.35	n.a.
Average Annual Wage 2004	\$43,363	\$65,414
Direct-Effect Employment Multiplier	1.89	3.15
Total Employment Impact	2,363	1,272,936
<b>TOTAL PRIVATE SECTOR</b>		
Establishments 2004	71,693	8,156,137
2001-2004 Establishment % Change	4.2%	4.8%
Employment 2004	942,399	109,249,195
2001-2004 Employment % Change	-0.4%	-0.7%
Share of U.S. Employment	0.9%	100.0%
Location Quotient	n.a.	n.a.
Average Annual Wage 2004	\$29,791	\$39,003

Source: Battelle calculations -- based on Bureau of Labor Statistics QCEW data from the Minnesota Implan Group, RIMS II Employment Multipliers from the Bureau of Economic Analysis, and the Census Bureau's Economic Census.

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





	Arkansas	United States	Rank
<b>University R&amp;D Expenditures, FY 2003</b>			
Total (\$ thousands)	\$183,183	\$40,104,621	40
Life Science R&D (\$ thousands)	\$126,974	\$24,062,088	37
Percent of Total R&D	69.3%	60.0%	
Life Sciences Per Capita	\$46.58	\$82.74	
Change in Life Sciences FY 1999-2003	37.4%	52.7%	
<b>NIH Support to Institutions, FY 2004</b>			
Total (\$ thousands)	\$56,185	\$22,556,459	41
Per Capita Expenditures	\$20.61	\$77.56	
Change in Expenditures FY 2000-2004	44.8%	53.2%	
<b>Higher Education Degrees in Bioscience Fields, AY 2004</b>	1,082	111,329	34
<b>Bioscience Occupations in the Workforce, 2004</b>	3,840	616,140	36