

MAINE

Maine has a specialized employment concentration in the research, testing, and medical laboratories subsector (location quotient of 1.28) and showed faster-than-average growth over the 6 years ending in 2006 in the drugs and pharmaceuticals and medical devices and equipment subsectors. Academic bioscience research expenditures were \$46 million in 2006, with the largest share in agricultural sciences (\$24 million), followed by biological sciences. Maine's 695 bioscience patents in the past 6 years placed it slightly above its population rank. The largest single category was drugs and pharmaceuticals, followed by biochemistry.

Major Industry Developments and Recent Successes

- **Bar Harbor BioTechnology**, a Bar Harbor developer of DNA and RNA analysis equipment, raised a multimillion round of funding in 2007. The firm is the first spin-off of the Jackson Laboratory.
- Maine's **IDEXX Laboratories** continues to expand with revenues increasing 25 percent in 2007. IDEXX is the global market leader in diagnostics and information technology solutions for pet health care providers worldwide.
- **MariCal**, an aquatic life sciences company that develops and licenses innovative solutions to problems facing the aquaculture industry, also continues to grow. MariCal has one product in commercial use and 10 products in various stages of development.

Recent State Initiatives

In 2007, the Maine Legislature authorized and the voters approved \$50 million in bond funding to create the **Maine Technology Asset Fund**. The Fund is a 2-year, competitive award program for investment in research and development and commercialization that is open to all research entities and companies in Maine. Awards can be used for capital investments in research assets, including facilities construction and renovation, machinery and equipment (including computers, software, and licenses required for their use, as well as related technician training for operation of equipment and machinery purchased), and land purchase. The program is administered by the Maine Technology Institute.

Six Maine biomedical research institutions have joined together to create a new **Graduate School of Biomedical Science**. The School is a collaboration of the University of Maine, Jackson Laboratory, Maine Medical Center Research Institute, Mount Desert Island Biological Laboratory, the University of Southern Maine, and the Maine Institute for Human Genetics and Health. The School offers a doctoral degree in biomedical sciences with concentrations in molecular and cellular biology, neuroscience, biomedical engineering, and toxicology. An interdisciplinary doctoral degree in functional genomics is also offered.

The Maine Technology Institute continues to provide early-stage capital and commercialization assistance to technology-based projects in key industry clusters, including the biosciences.

The University of Maine hosts a **Forest Bioproducts Research Initiative** that is using a \$6.9 million award from the National Science Foundation's (NSF's) Experimental Program to Stimulate Competitive Research (EPSCoR) (matched by \$3.45 million from the Maine Economic Improvement Fund) to create a pilot biorefinery that would extract hemicellulose for ethanol upstream from existing wood-pulp paper mills.

For additional information on Maine's bioscience policies and programs, please see <http://www.maineinnovation.com> and <http://www.mainebiotech.org>.

Bioscience Industry Base, 2006

Industry Subsector	Maine		United States	
	2006	2001-06 Change	2006	2001-06 Change
Agricultural Feedstock & Chemicals				
Establishments	15	43.8%	2,183	3.8%
Employment	247	41.5%	105,846	-6.1%
Location Quotient	0.53		n.a.	
Direct-Effect Employment Multiplier	3.61		11.22	
Total Employment Impact	893		1,214,709	
Average Annual Wage	\$39,593		\$67,870	
Drugs & Pharmaceuticals				
Establishments	20	-9.1%	2,654	1.9%
Employment	1,173	25.3%	317,149	4.0%
Location Quotient	0.84		n.a.	
Direct-Effect Employment Multiplier	4.96		9.92	
Total Employment Impact	5,817		2,880,242	
Average Annual Wage	\$67,327		\$86,892	
Medical Devices & Equipment				
Establishments	54	26.1%	15,215	0.3%
Employment	1,177	20.3%	422,993	-0.9%
Location Quotient	0.63		n.a.	
Direct-Effect Employment Multiplier	2.41		4.85	
Total Employment Impact	2,840		1,980,128	
Average Annual Wage	\$30,717		\$59,441	
Research, Testing, & Medical Laboratories				
Establishments	102	15.1%	22,857	32.7%
Employment	2,534	11.5%	449,991	17.8%
Location Quotient	1.28		n.a.	
Direct-Effect Employment Multiplier	1.97		3.25	
Total Employment Impact	4,979		1,440,500	
Average Annual Wage	\$45,323		\$71,284	
Total Private Sector				
Establishments	46,126	6.7%	8,575,730	10.2%
Employment	498,754	0.5%	113,463,842	3.1%
Average Annual Wage	\$33,194		\$42,272	

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

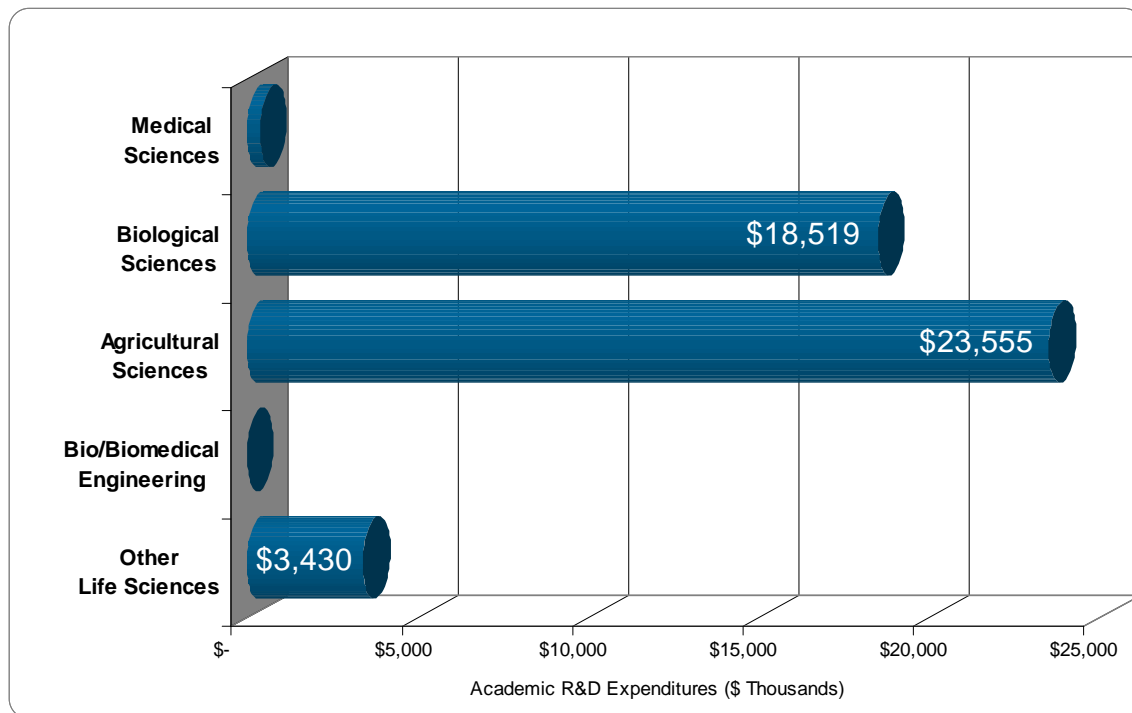
Additional Bioscience Performance Metrics

Summary of State Performance in Selected Bioscience-related Metrics

	Maine	United States	Rank
Academic R&D Expenditures, FY 2006			
Total (\$ thousands)	\$120,038	\$47,760,402	48
Bioscience R&D (\$ thousands)	\$45,887	\$29,307,628	50
Bioscience Share of Total R&D	38.2%	61.4%	
Bioscience R&D Per Capita	\$34.90	\$98.10	
Change in Bioscience R&D FY 2002–2006	111.3%	36.9%	
NIH Funding, FY 2007			
Total (\$ thousands)	\$67,055	\$21,066,389	38
Per Capita Funding	\$50.91	\$69.84	
Change in Funding, FY 2002–2007	-1.3%	11.2%	
Higher Education Degrees in Bioscience Fields, AY 2006	583	143,433	44
Employment in Bioscience-related Occupations, 2006	1,890	588,520	45
Bioscience Venture Capital Investments, 2002-2007 (\$ millions)	\$16.8	\$51,260.9	39
Bioscience and Related Patents, 2002-2007	695	121,817	33

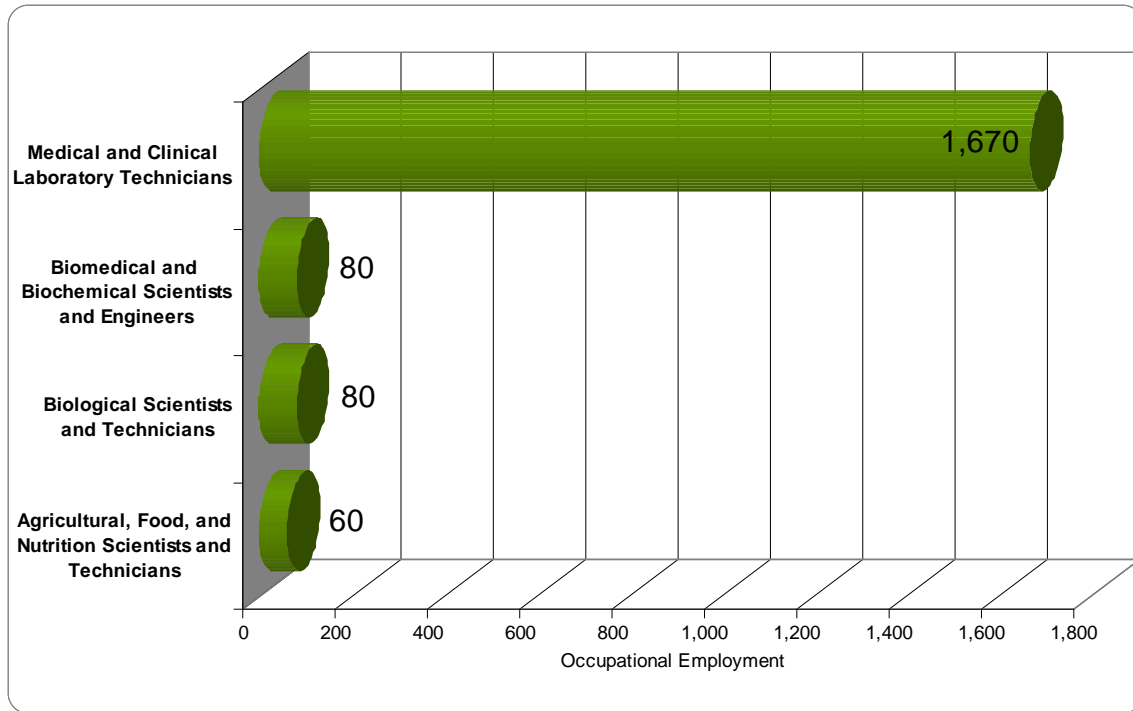
Bioscience R&D Base

Bioscience Academic R&D Expenditures in Maine, FY 2006

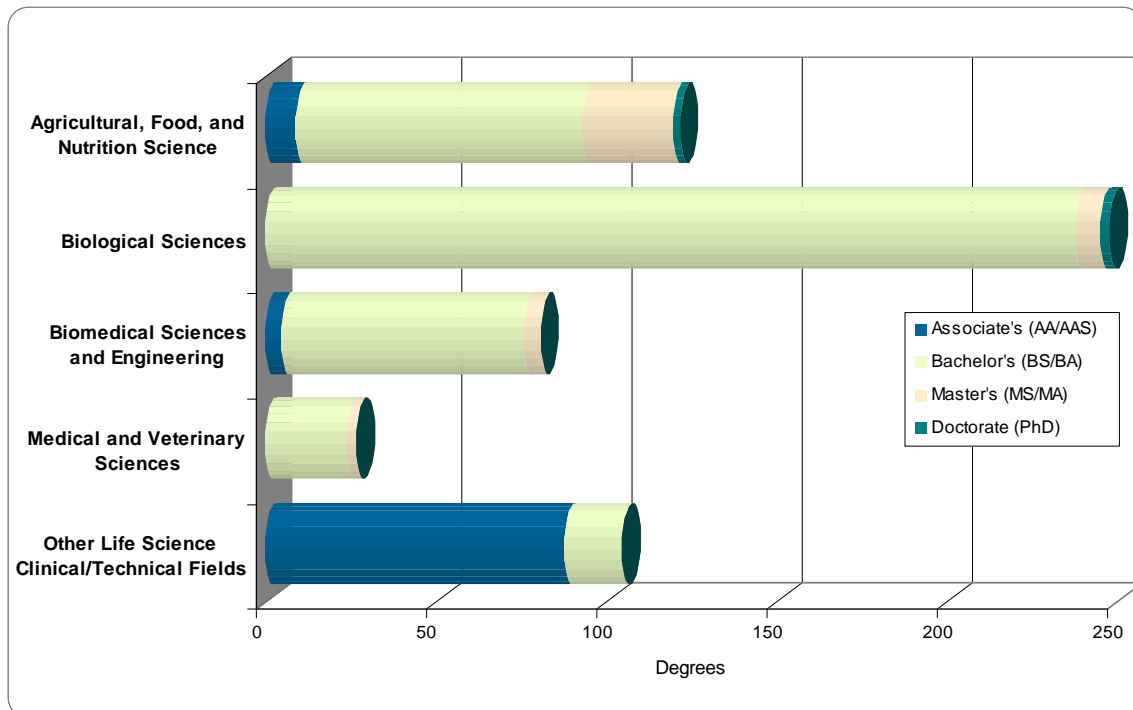


Bioscience Talent Base

Bioscience-related Occupational Employment in Maine, 2006

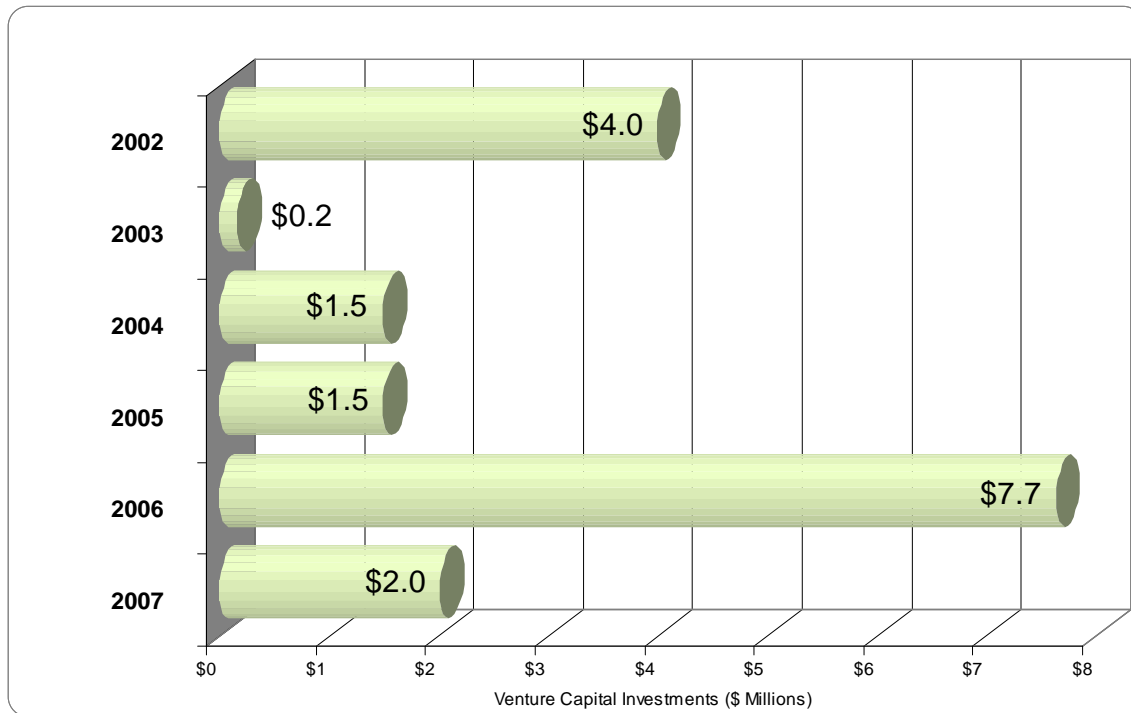


Bioscience-related Degrees in Maine, AY 2006

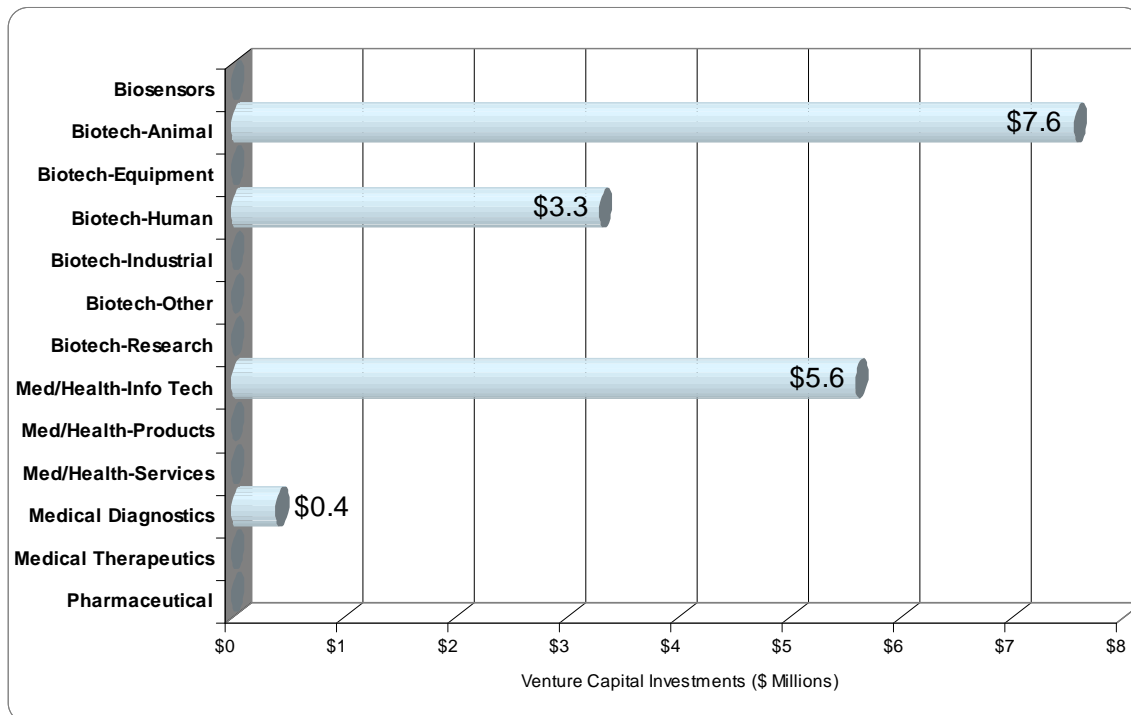


Bioscience Venture Capital

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

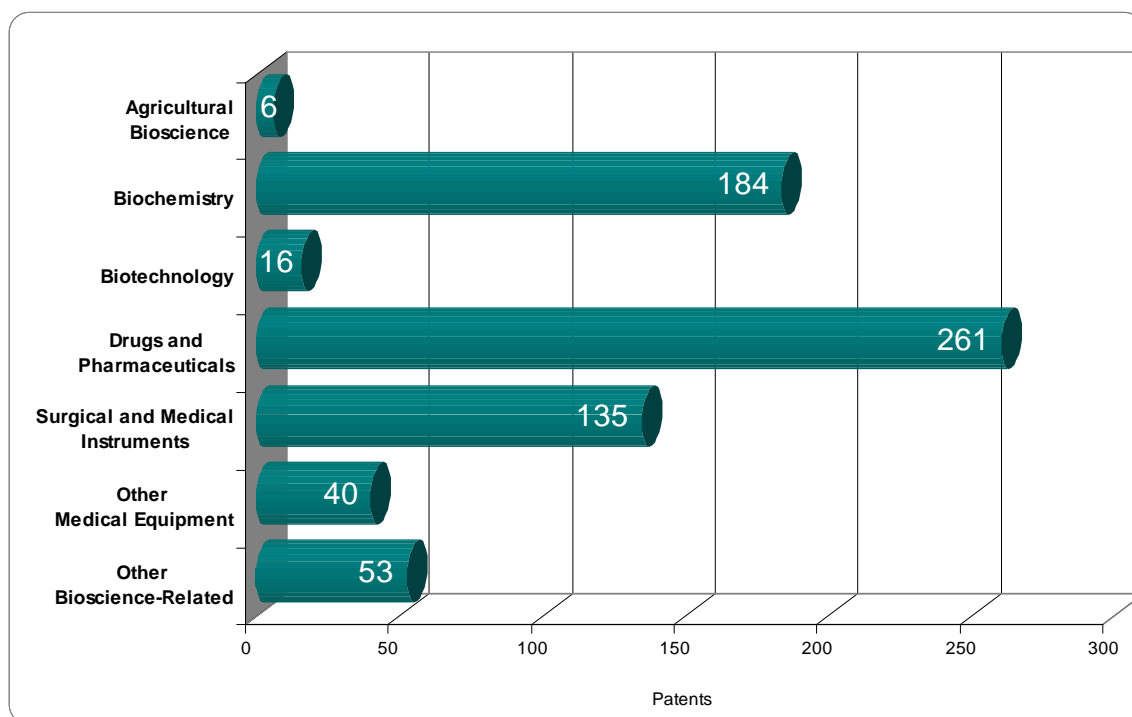


Bioscience-related Venture Capital Investments in Maine by Segment, 2002–2007



Bioscience Patents

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



State Bioscience Contacts

State Agency Contact:

Catherine Renault, Ph.D.
Director, Office of Innovation
Maine Department of Economic and Community
Development
59 State House Station
Augusta, ME 04333
(207) 624-9801
catherine.s.renault@maine.gov

State Bio Association Contact:

Jane Sheehan, Esq.
Vice President and COO
Biotechnology Association of Maine
415 Congress, Suite 202
Portland, ME 04101
(207) 699-1317
jsheehan@fbr.org

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.