

## HAWAII

In Hawaii, the research, testing, and medical laboratories subsector is specialized (location quotient of 1.26) and grew at twice the national growth rate since 2001 (up 36 percent). Academic research expenditures in the biosciences hit \$85.8 million in 2006, heavily concentrated in the medical sciences. The \$54.7 million in bioscience venture capital investments made during the past 6 years was mainly in medical diagnostics, followed by pharmaceuticals, and hit a peak in 2006. The 2,964 patents issued in the same period were led by pharmaceuticals, surgical and medical instruments, and biochemistry. The total patents placed Hawaii 12th among all states, substantially higher than its population rank.

### Major Industry Developments and Recent Successes

- **Hoana Medical** received the State's first U.S. Food and Drug Administration 510(k) approval for a medical device, a bed with embedded sensors for continuous vigilance (observation) of patient conditions.
- **Hawaii Biotech**, the State's oldest biotech company, received funding from the Pediatric Dengue Vaccine Initiative to produce a vaccine for clinical trials.

### Recent State Initiatives

Hawaii continued to develop initiatives related to the **Life Sciences Roadmap** of 2005. In 2007, Governor Linda Lingle put forward a comprehensive Innovation Initiative, parts of which pertained to the biosciences. Among the components that passed the Legislature was an authorization to the Hawaii High Technology Development Corporation to enter into a 10-year lease with a State guarantee for 99,000 square feet of laboratory and office incubation space in the planned 400,000-square-foot **Asia Pacific International Research Center**. This life-science complex is being privately developed on land contributed by the Kamehameha Schools Bishop Estate.

The Legislature also passed a directive to the **Employee Retirement System** to develop criteria for an externally managed venture-capital fund (or fund of funds) focusing on in-state investment opportunities.

For additional information on Hawaii's bioscience policies and programs, please see <http://www.hawaii.gov/dbedt> and <http://www.hiscitech.org>.

## Bioscience Industry Base, 2006

Industry Subsector	Hawaii		United States	
	2006	2001-06 Change	2006	2001-06 Change
<b>Agricultural Feedstock &amp; Chemicals</b>				
Establishments	7	-41.5%	2,183	3.8%
Employment	74	-77.7%	105,846	-6.1%
Location Quotient	0.16		n.a.	
Direct-Effect Employment Multiplier	3.50		11.22	
Total Employment Impact	259		1,214,709	
Average Annual Wage	\$34,340		\$67,870	
<b>Drugs &amp; Pharmaceuticals</b>				
Establishments	4	-20.0%	2,654	1.9%
Employment	73	-8.2%	317,149	4.0%
Location Quotient	0.05		n.a.	
Direct-Effect Employment Multiplier	3.81		9.92	
Total Employment Impact	280		2,880,242	
Average Annual Wage	\$42,658		\$86,892	
<b>Medical Devices &amp; Equipment</b>				
Establishments	46	-6.3%	15,215	0.3%
Employment	334	-34.6%	422,993	-0.9%
Location Quotient	0.18		n.a.	
Direct-Effect Employment Multiplier	1.98		4.85	
Total Employment Impact	661		1,980,128	
Average Annual Wage	\$42,224		\$59,441	
<b>Research, Testing, &amp; Medical Laboratories</b>				
Establishments	89	26.3%	22,857	32.7%
Employment	2,508	36.2%	449,991	17.8%
Location Quotient	1.26		n.a.	
Direct-Effect Employment Multiplier	2.20		3.25	
Total Employment Impact	5,515		1,440,500	
Average Annual Wage	\$53,540		\$71,284	
<b>Total Private Sector</b>				
Establishments	35,220	3.4%	8,575,730	10.2%
Employment	500,330	12.2%	113,463,842	3.1%
Average Annual Wage	\$35,908		\$42,272	

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

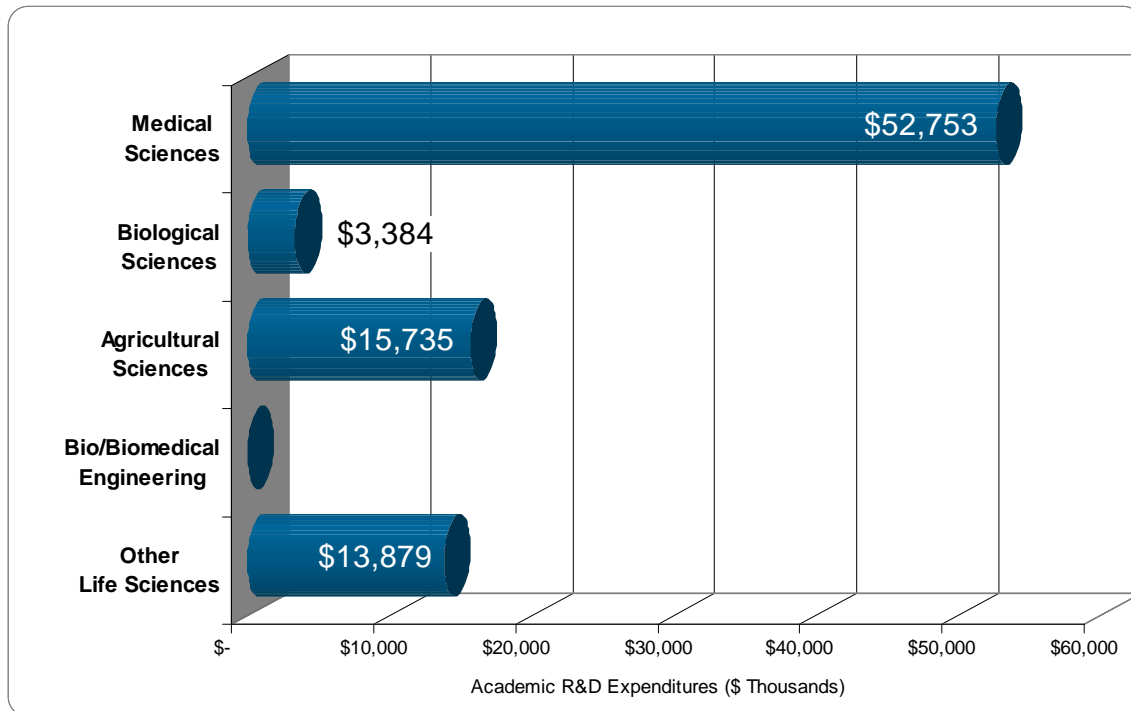
## Additional Bioscience Performance Metrics

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

	Hawaii	United States	Rank
Academic R&D Expenditures, FY 2006			
Total (\$ thousands)	\$257,478	\$47,760,402	38
Bioscience R&D (\$ thousands)	\$85,751	\$29,307,628	43
Bioscience Share of Total R&D	33.3%	61.4%	
Bioscience R&D Per Capita	\$67.06	\$98.10	
Change in Bioscience R&D FY 2002–2006	34.4%	36.9%	
NIH Funding, FY 2007			
Total (\$ thousands)	\$65,801	\$21,066,389	40
Per Capita Funding	\$51.27	\$69.84	
Change in Funding, FY 2002–2007	23.7%	11.2%	
Higher Education Degrees in Bioscience Fields, AY 2006	407	143,433	50
Employment in Bioscience-related Occupations, 2006	2,490	588,520	39
Bioscience Venture Capital Investments, 2002-2007 (\$ millions)	\$54.7	\$51,260.9	35
Bioscience and Related Patents, 2002-2007	2,964	121,817	12

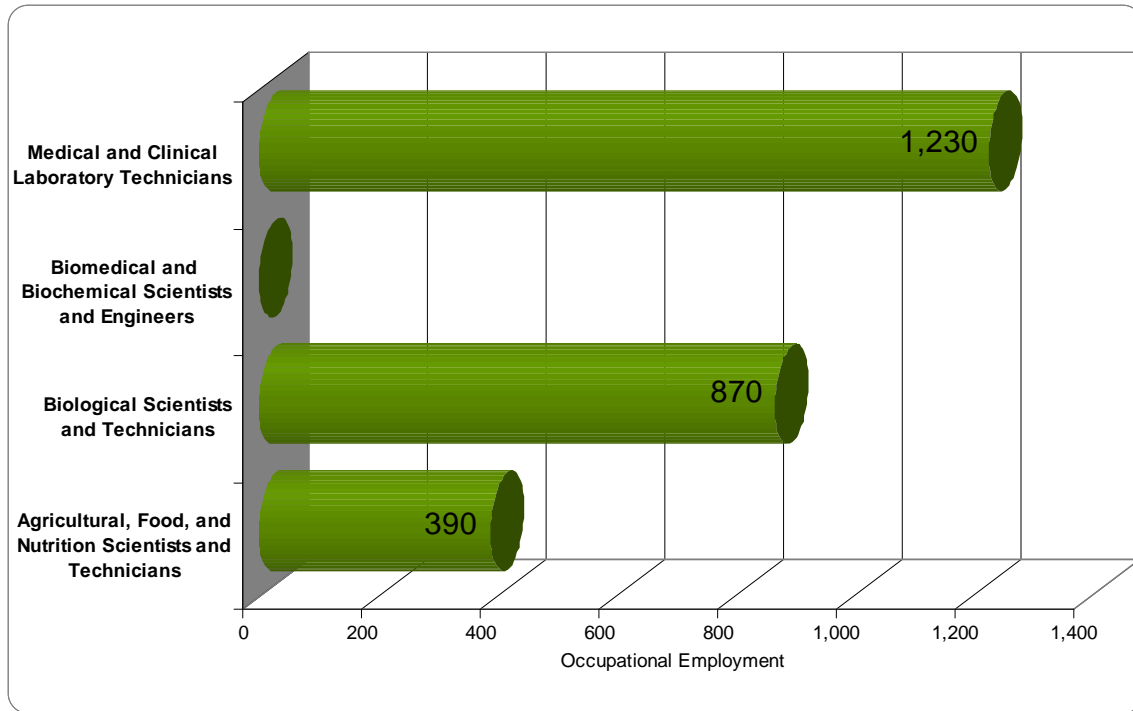
## Bioscience R&D Base

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

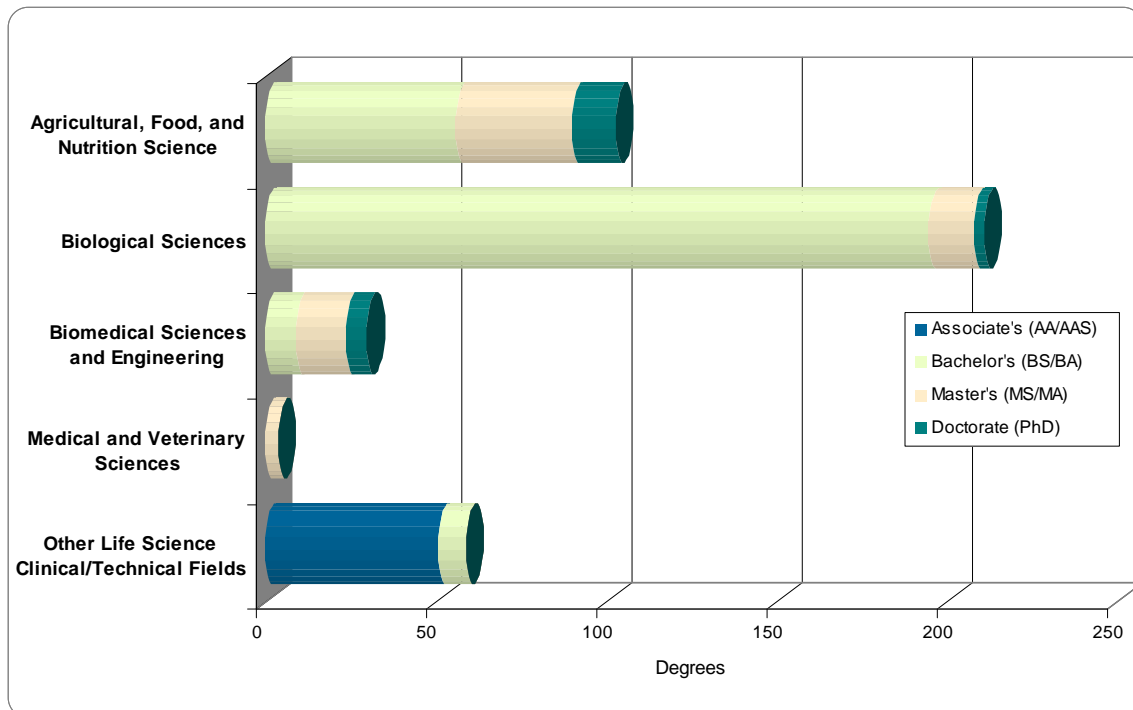


## Bioscience Talent Base

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

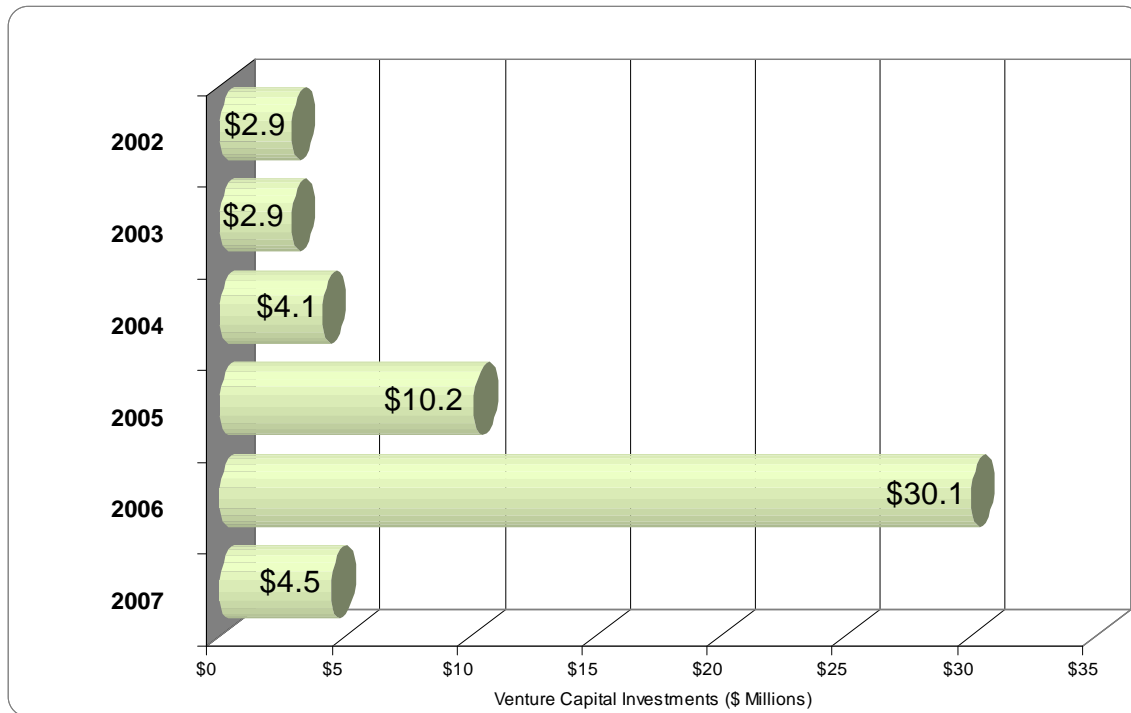


### Bioscience-related Degrees in Hawaii, AY 2006

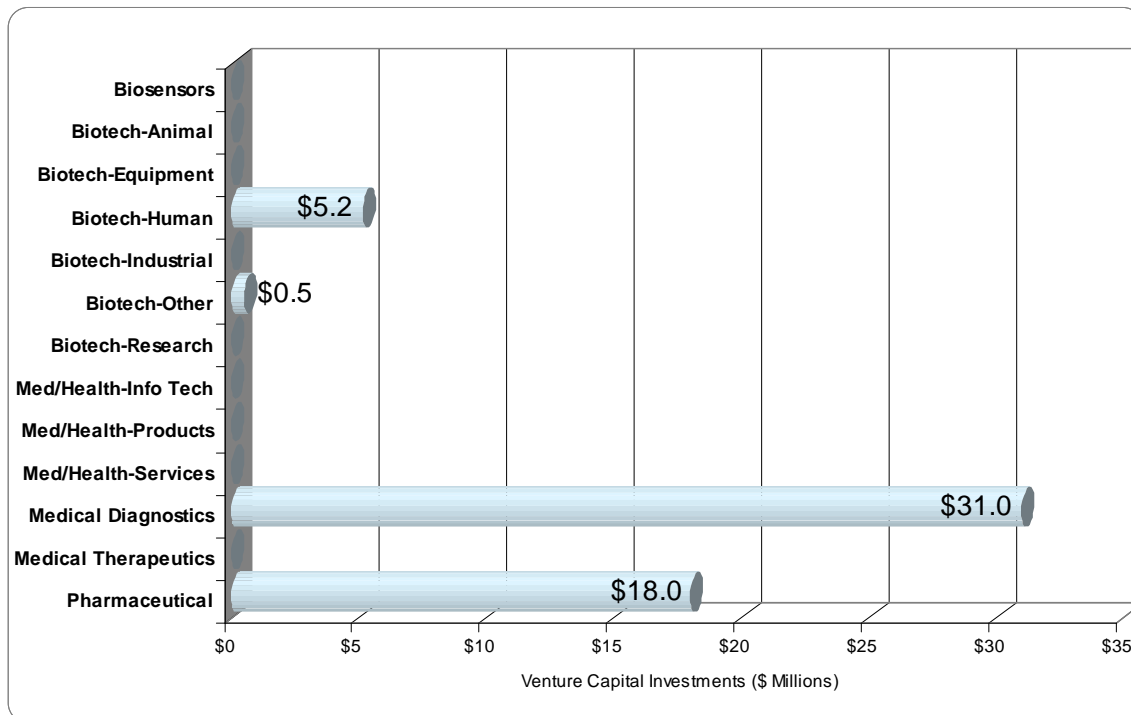


## Bioscience Venture Capital

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

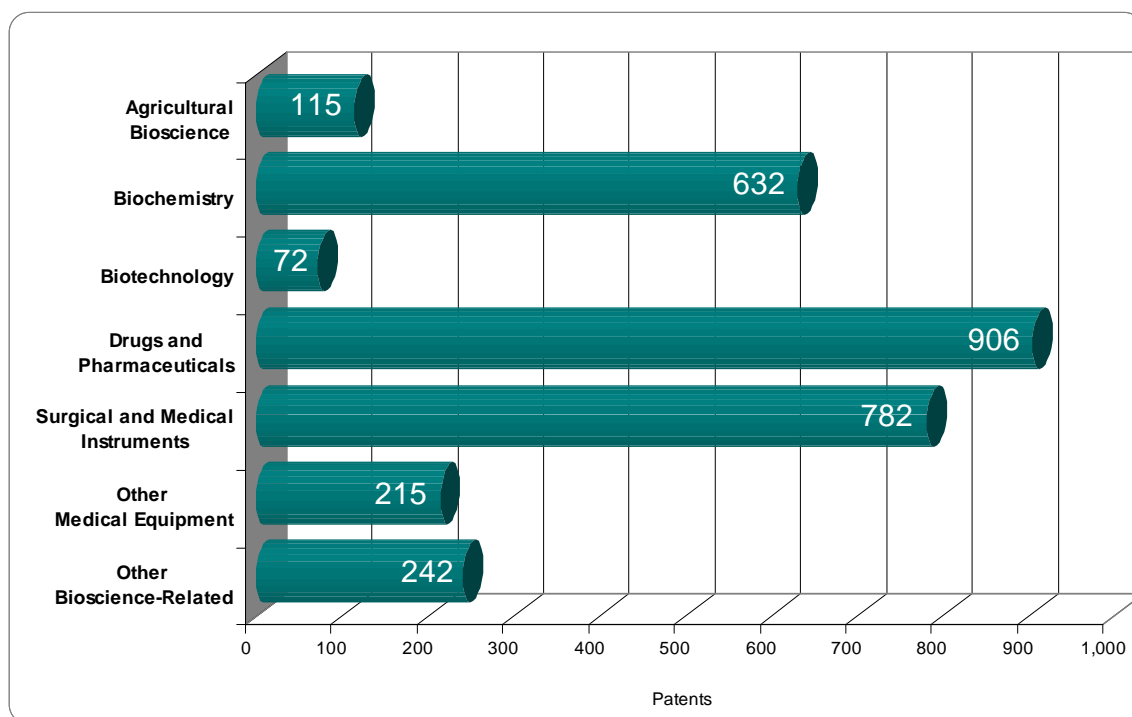


### Bioscience-related Venture Capital Investments in Hawaii by Segment, 2002–2007



## Bioscience Patents

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