



## Overview and Summary of Recent Initiatives

Health and life sciences are among eight industry clusters targeted by the **Rhode Island Economic Development Corporation (RIEDC)**, a nonprofit economic development affiliate of the state, pursuant to a “Technology Pipeline” study conducted by the **Rhode Island Economic Policy Council** in 2001. Biomedical technologies are also among the four sectors in which pre-seed stage venture investments are made by the **Slater Technology Fund** (see below).

Since the last BIO report, voters approved by 57.9 percent Question 13, a \$50 million bond issue to support new bioscience facilities at the University of Rhode Island (URI) Kingston campus. The state’s technology council, now known as **Tech Collective**, also created a **BioGroup** subsidiary council, which is now the BIO affiliate.

By Executive Order 7 of 2005, Governor Donald Carcieri created a **Science and Technology Advisory Council (STAC)** that has developed an **innovate RI** agenda. STAC has made a series of recommendations for improving the innovation climate, all of which were endorsed by the Governor in his 2006 legislative agenda (see below under “Pending proposals”).

## Building Bioscience R&D Capacity

### Recent state investments in facilities

The approved bond funding will support an 86,700-square-foot **Center for Biotechnology and Life Sciences** scheduled to open in 2008 on the north side of URI’s Kingston campus. This building will facilitate interaction by life science researchers in the College of the Environment and Life Sciences with those in the College of Arts and Sciences. The Governor has announced support for \$140 million in additional bond financing for three related buildings housing pharmacy, nursing, and chemistry in order to create a larger “health sciences quadrangle.”

Brown University is set to open this spring a privately financed, \$95 million, 168,000-square-foot **Life Science Building**. This building will house four departments and related interdisciplinary programs in genetics and genomics. In 2004, the university opened a separate 105,000-square-foot commercial facility that it acquired and renovated for a total of \$38 million. Overall life science space has risen by more than half since 2000.

## Moving Technology into the Marketplace

### Commercializing university technology

The **Slater Technology Fund** has elements of both a commercialization fund and a pre-seed investment fund. The fund makes investments of up to \$100,000 in start-up companies across four fields, including biomedical technologies. Each investment pairs a set of seasoned entrepreneurs with university-based scientists/inventors. The fund's stated intent is to provide technical assistance deep enough to sustain these start-ups until they can raise formal capital.

### Supporting bioscience entrepreneurs and emerging companies

During the past 2 years, Rhode Island launched a second vehicle for technology commercialization called the **Business Innovation Factory (BIF)**. The goal of this separately incorporated nonprofit is to create and launch "collaborative innovation projects," or strategic partnerships for testing and refining new business models based on innovation. Dues-paying members of the BIF include large companies with diverse business interests in the state, major institutions, and other firms in the supply chain. One example of a bioscience project is the Health Care Innovation Pilot, which seeks to design and test new patient-focused models for healthcare delivery.

## Making Capital Available

### Pre-seed and seed capital

Pre-seed investments in multiple fields including the biosciences are available from Cherrystone Angel Group, founded in 2004.

### Venture capital

The Slater Fund often co-invests with accredited angel investors and reports that 12 of the 80 companies formed in 7 years received formal venture capital.

## Providing Space for Bioscience Companies

### Incubators

The Slater Fund acquired a 7,000-square-foot floor in a building on the east side of Providence in 2003 and makes it available for use as a wet-lab incubator.

### Facilities financing

In recent years RIEDC has financed two large biomanufacturing facilities—one operated by Dow in Smithfield and another by Immunex/Amgen in West Greenwich (now 1,500 workers and total investment of \$1.5 billion). This success has led to discussion of creating a 100,000-square-foot shared biomanufacturing facility in northern Rhode Island. Legislation has been offered allowing \$5.39 million in credit enhancements for private development.

## Bioscience research parks

The state has provided \$200,000 in planning money toward a privately developed **Marine BioScience Research and Business Park** at the current Quonset Point/Davisville Industrial Park.

## Addressing Talent Needs

### Recruiting management talent

The **Brown Forum for Enterprise** provides focus for entrepreneurial activity involving not only Brown spin-offs but also other entrepreneurial start-ups. The STAC has also proposed (see below) a tax credit to encourage serial entrepreneurs.

### Specialized postsecondary programs

Spurred by the two biomanufacturing investments, URI created a **Biotechnology Manufacturing Training Program** at its Providence campus (with certain equipment donated by Amgen), and the state has provided \$300,000 toward conceptual planning for a full-scale facility.

Two local hospitals collaborate with URI's continuing education division on a Rhode Island **School of Cytology**. Work in the clinical internship may be applied toward a master's degree.

Community College of Rhode Island's **Biotechnology Education Initiative** debuted in 2004 with a cross-departmental certificate program and is now developing an associate's degree with particular emphasis on biomanufacturing. CCRI is a member of the **Northeast Biomanufacturing Collaborative** steered by institutions in New Hampshire.

### K-12 outreach programs

Improvements in K-12 math and science education that would affect the bioscience pipeline have been a key focus of a series of Stakeholder Dialogues convened by the Tech Collective under the Carcieri administration's Project Making the Grade.

## Pending Proposals

Recommendations of the STAC endorsed by Governor Carcieri for legislative action include the following:

- Creation of a **Rhode Island Collaborative Research Alliance**, equipped initially with a \$1.5 million state match to a \$6.75 million EPSCoR award intended to build the state's capacity in genomics and proteomics.
- Appointment of a **blue-ribbon commission** to advise on strategies for improving the research capacity of the University of Rhode Island.
- Adaptation of the state's existing film and television tax credit into a **Science and Technology Entrepreneur Tax Credit** designed to attract "serial entrepreneurs" who can implement the "innovate @ scale" vision of the STAC report. Details have not been released, but the existing film tax credit offers investors in certain Rhode Island-based productions a refundable credit of up to 25 percent against their share of in-state production costs.

## Contacts

Saul Kaplan

Director of Business Development, Rhode Island Economic Development Corporation

One West Exchange Street

Providence, RI 02903

(401) 222-2601

[skap@riedc.com](mailto:skap@riedc.com)

The Tech Collective is a not-for-profit, membership-driven organization that champions technology growth and innovation in Rhode Island around three core programs: membership, workforce development, and entrepreneurship.

Katherine O'Dea

Executive Director, BioGroup of the Tech Collective

3 Davol Square, Box 183

Providence, RI 02903

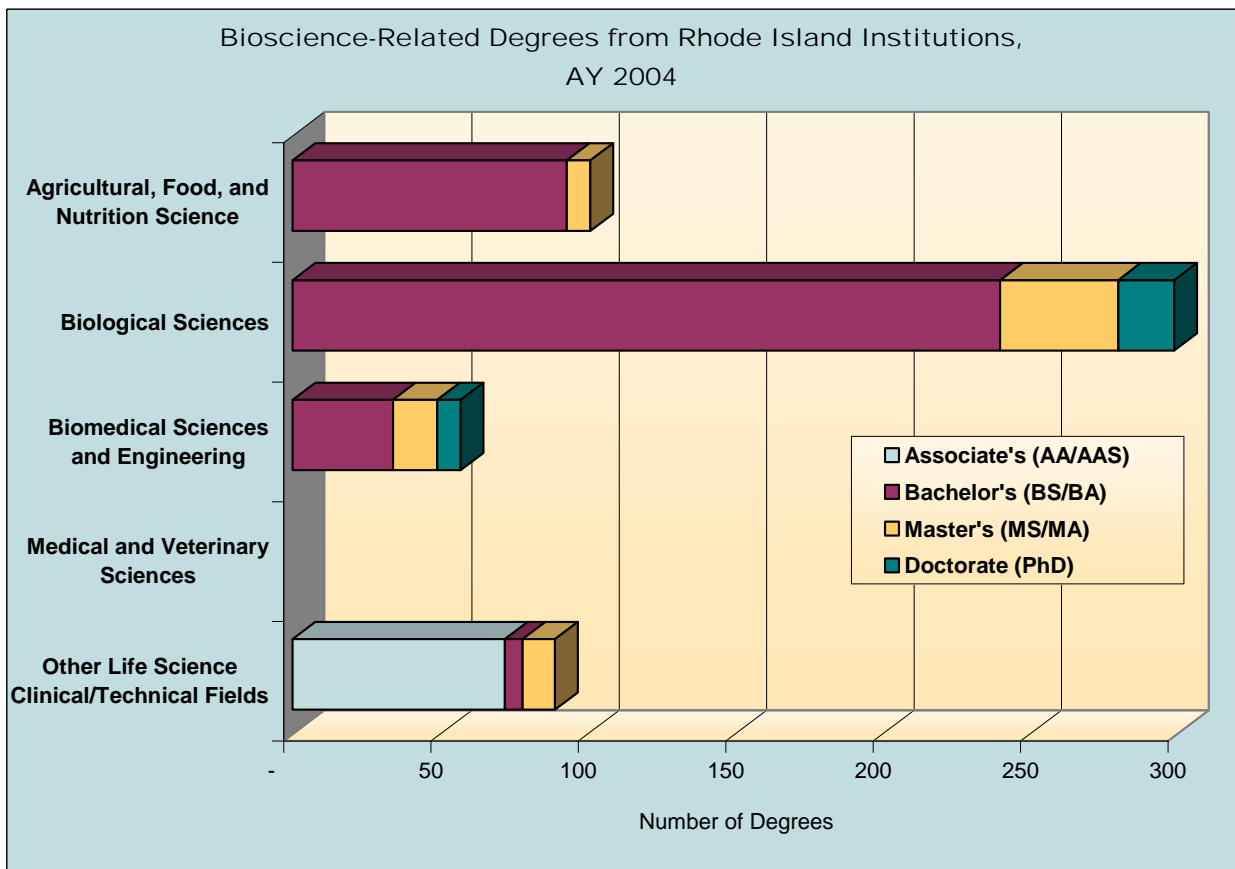
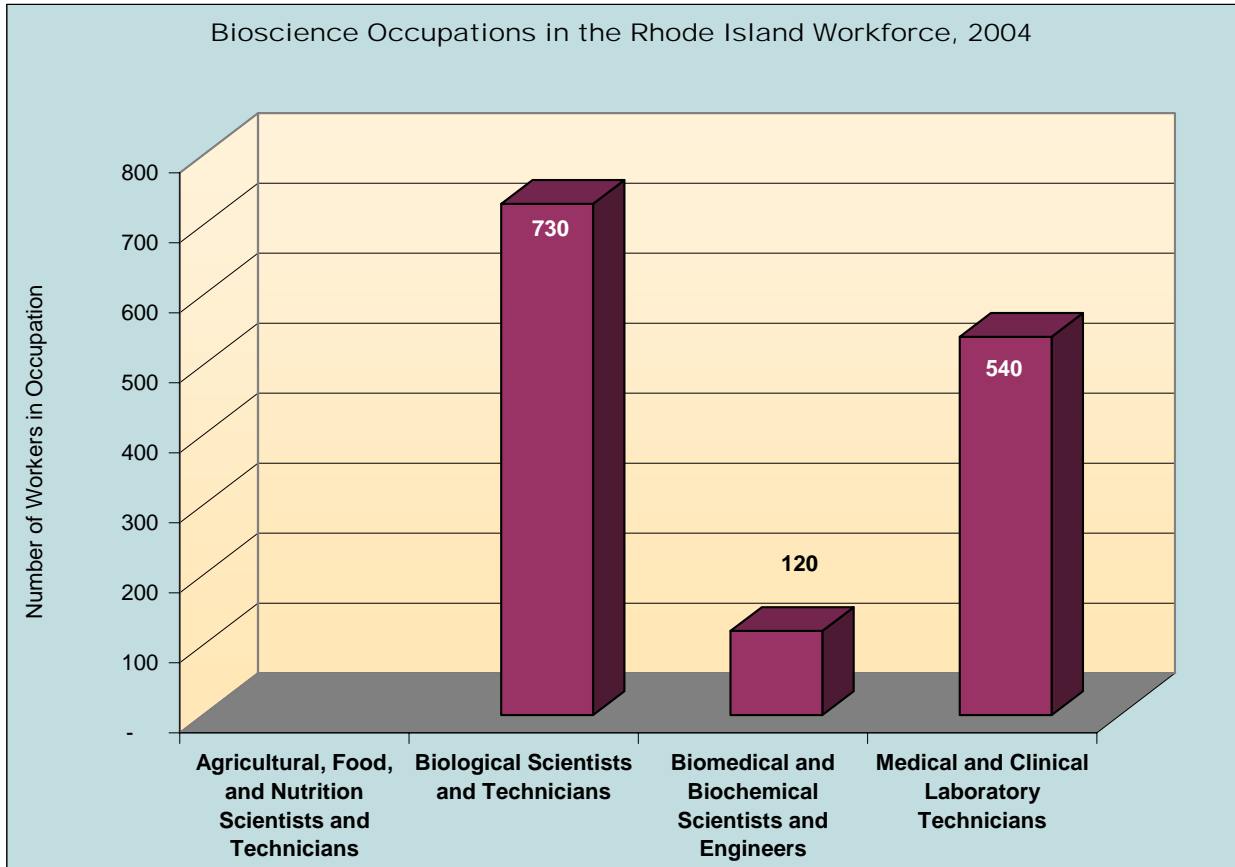
(401) 521-7805 x104

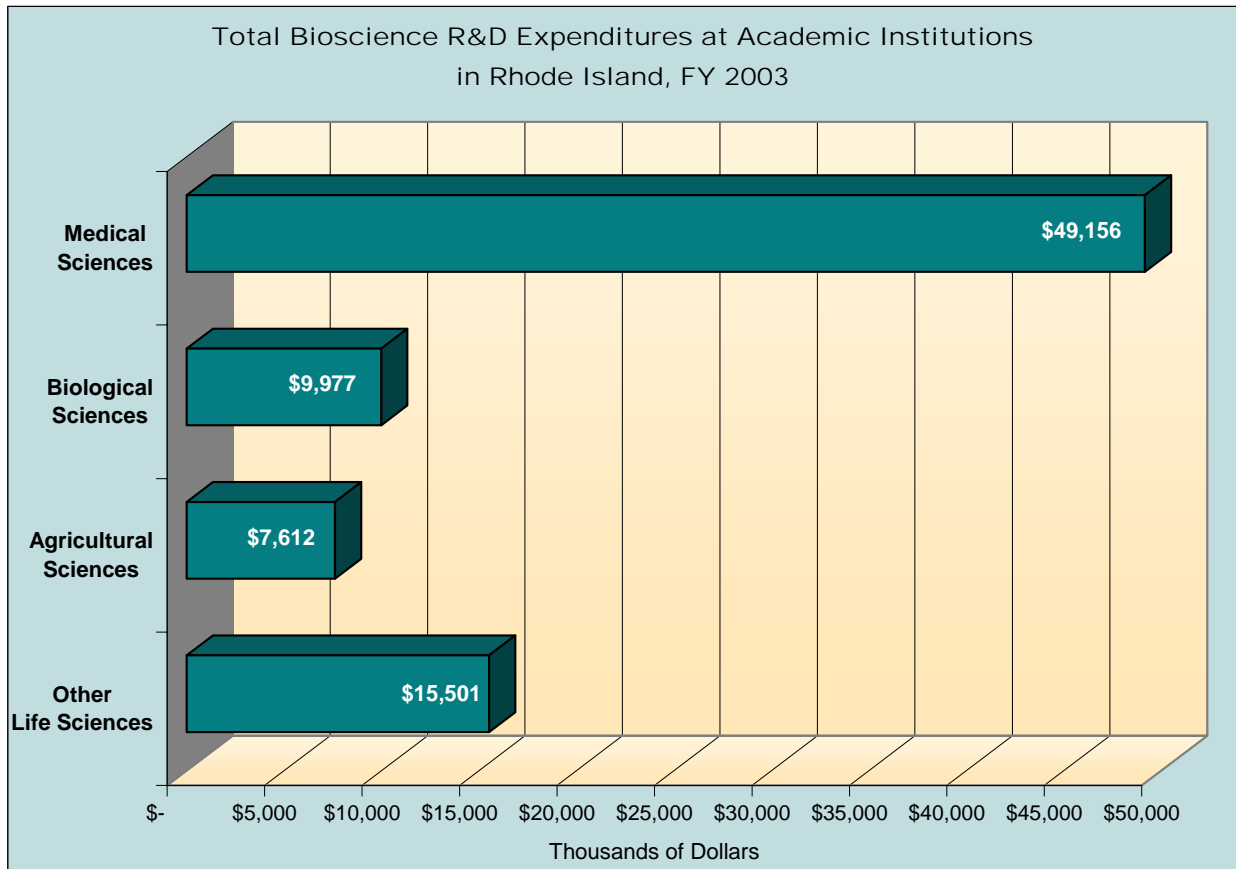
[kodea@tech-collective.org](mailto:kodea@tech-collective.org)

Industry Subsector	Rhode Island	United States
<b>Agricultural Feedstock &amp; Chemicals</b>		
Establishments 2004	3	2,111
2001-2004 Establishment % Change	-24.1%	0.4%
Employment 2004	78	104,893
2001-2004 Employment % Change	192.7%	-6.9%
Share of U.S. Employment	0.1%	100.0%
Location Quotient	0.20	n.a.
Average Annual Wage 2004	\$58,282	\$63,383
Direct-Effect Employment Multiplier	3.60	10.91
Total Employment Impact	283	1,212,094
<b>Drugs &amp; Pharmaceuticals</b>		
Establishments 2004	13	2,589
2001-2004 Establishment % Change	0.0%	-0.6%
Employment 2004	1,533	313,207
2001-2004 Employment % Change	192.0%	2.7%
Share of U.S. Employment	0.5%	100.0%
Location Quotient	1.30	n.a.
Average Annual Wage 2004	\$83,354	\$79,303
Direct-Effect Employment Multiplier	5.85	9.51
Total Employment Impact	8,965	2,731,321
<b>Medical Devices &amp; Equipment</b>		
Establishments 2004	80	15,190
2001-2004 Establishment % Change	3.3%	0.2%
Employment 2004	1,465	411,460
2001-2004 Employment % Change	-8.9%	-3.6%
Share of U.S. Employment	0.4%	100.0%
Location Quotient	0.94	n.a.
Average Annual Wage 2004	\$40,752	\$56,449
Direct-Effect Employment Multiplier	2.23	4.56
Total Employment Impact	3,267	1,817,705
<b>Research, Testing, &amp; Medical Laboratories</b>		
Establishments 2004	109	20,565
2001-2004 Establishment % Change	26.8%	19.4%
Employment 2004	1,332	413,550
2001-2004 Employment % Change	3.2%	8.2%
Share of U.S. Employment	0.3%	100.0%
Location Quotient	0.85	n.a.
Average Annual Wage 2004	\$62,382	\$65,414
Direct-Effect Employment Multiplier	1.93	3.15
Total Employment Impact	2,564	1,272,936
<b>TOTAL PRIVATE SECTOR</b>		
Establishments 2004	34,418	8,156,137
2001-2004 Establishment % Change	4.4%	4.8%
Employment 2004	412,224	109,249,195
2001-2004 Employment % Change	1.8%	-0.7%
Share of U.S. Employment	0.4%	100.0%
Location Quotient	n.a.	n.a.
Average Annual Wage 2004	\$35,959	\$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.





	Rhode Island	United States	Rank
<b>University R&amp;D Expenditures, FY 2003</b>			
Total (\$ thousands)	\$187,131	\$40,104,621	38
Life Science R&D (\$ thousands)	\$82,246	\$24,062,088	41
Percent of Total R&D	44.0%	60.0%	
Life Sciences Per Capita	\$76.43	\$82.74	
Change in Life Sciences FY 1999–2003	89.5%	52.7%	
<b>NIH Support to Institutions, FY 2004</b>			
Total (\$ thousands)	\$133,162	\$22,556,459	31
Per Capita Expenditures	\$123.74	\$77.56	
Change in Expenditures FY 2000–2004	67.8%	53.2%	
<b>Higher Education Degrees in Bioscience Fields, AY 2004</b>	546	111,329	43
<b>Bioscience Occupations in the Workforce, 2004</b>	1,390	616,140	48