

Laboratories of Innovation: State Bioscience Initiatives 2004

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BIO—Biotechnology Industry Organization

Prepared by:
**Battelle Technology Partnership Practice
and SSTI**

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BIO SCIENCE 04



Battelle
The Business of Innovation

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BIO—Biotechnology Industry Organization—represents more than 1,000 biotechnology companies, academic institutions, state biotechnology centers, and related organizations in all 50 U.S. states and 33 other nations. BIO members are involved in the research and development of health-care, agricultural, industrial, and environmental biotechnology products.

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State Profiles



The following profiles were developed with the support of SSTI state contacts and state bioscience industry organizations. Battelle thanks everyone who provided guidance and feedback on early drafts, but affirms that it alone has editorial responsibility.

Every attempt has been made to ensure the accuracy and completeness of the profiles. However, despite best efforts, initiatives may have not been captured or may have been described inadequately or miscategorized. State policy and programs change rapidly, making it difficult to maintain up-to-date information. Moreover, many initiatives could have been listed in more than one category since programs often have multiple objectives. Battelle used its judgment regarding the primary purpose of a program when deciding under which heading to list it. If a state does not have a program listed under a particular heading, it may still have relevant initiatives listed under a different heading.

It also is likely that additional technology-based economic-development programs are used to assist bioscience companies. For this reason, Battelle has included contacts in each state who can provide updated information.

Readers who note discrepancies or omissions are invited to send corrections for use in future editions to clarkem@battelle.org.

Table 12 contains the sources for the statistical data provided in each state profile. State ranks were calculated based on data for the 50 states and the District of Columbia.

Table 12: Statistical Data Sources and Notes for the State Profiles

Category	Data Sources and Notes
Employment, Establishment, and Wage Data	Battelle calculations based on ES-202 data from the Minnesota Implan Group
Biological Scientists in the Workforce	U.S. Bureau of Labor Statistics Occupation and Employment Statistics and Battelle calculations, FY 2000–2002
Bioscience Degrees Awarded	National Center for Educational Statistics, IPED Survey, and Battelle calculations, Academic Year (AY) 2002
Bioscience R&D Expenditures	National Science Foundation, <i>Survey of Research and Development Expenditures at Universities and Colleges</i> , and Battelle calculations, FY 2002



Overview and Summary of Major Initiatives

Since the last BIO report, Oregon has implemented several facets of the agenda for technology-based economic development articulated in the 2002 report of the **Oregon Council on Knowledge and Economic Development** (OCKED), a policy study group appointed by the Governor pursuant to statute. In its report, OCKED had recommended that the state act to create new “signature research centers”; improve the university system’s effectiveness at technology transfer; address a gap in seed-stage venture capital funding; and start efforts to retain, attract, and develop the workforce necessary for a range of technologies, including the biosciences. The Legislature recently set aside funds for the first new research initiative and, in 2003, dramatically redirected the investment priorities of the state pension funds to favor investment in Oregon businesses across all emerging technology sectors (see below).

Also in 2002, voters approved \$200 million in general obligation bonding for **Oregon Opportunity**, a program to build R&D and clinical infrastructure at the Oregon Health and Sciences University (OHSU), as part of the latter’s transition from a public university to an independent public corporation. The University will match these funds 3:2 for a total of \$500 million that will support construction of 2.5 million square feet of new facilities over the next 30 years. Simultaneously, the City of Portland’s 2002 **Economic Development Strategy** aggressively identified commercialization of OHSU research a priority strategy for business formation and launched creation of an OHSU-affiliated research park on the Portland riverfront.

Building Bioscience R&D Capacity

Recent Investments in Bioscience R&D Facilities

OHSU facility initiatives already underway that are financed in part through the Oregon Opportunity initiative are

- a 250,000-square-foot, \$321 million biomedical research building at OHSU’s main Marquam Hill campus;
- a 300,000-square-foot clinical facility attached to OHSU Hospital at the same campus; and
- acquisition of additional facilities at the University’s 263-acre West Campus in Hillsboro, which already includes a neurological institute, a virology and genomics institute, and a primate-research center.

Bioscience Research Programs

The first “signature research center” to gain legislative support is a new **Oregon Nano-Microtech Institute**, a collaborative of the University of Oregon, Oregon State University (OSU), OHSU, and Pacific North-west National Laboratory in Washington. The Legislature appropriated \$21 million to match whatever funding the partners are able to obtain from the national nanotechnology initiatives. Hewlett-Packard has donated a building for temporary use while a structure on the OSU campus is refurbished for permanent use.

Encouraging Academic/Industrial Interaction

Bioscience Research Parks

The best developed research park with bioscience presence is the 67-acre **Riverfront Research Park** at the University of Oregon in Eugene. With 110,000 square feet currently developed, the Park targets 1 million square feet at full buildout. It targets both companies and university activities in neuroscience, biotechnology, and behavioral science, in addition to miscellaneous other technology uses.

Under Development

Portland Planning Commission is redeveloping the 131-acre **North Macadam District** on the waterfront as a mixed-use development that will include a research park associated with OHSU. To date, \$77 million in city funds have been committed to the first 31 acres of the redevelopment program.

Oregon State University in Corvallis has issued a request for proposal for development of a 42-acre site near campus as a research park/incubator.

Moving Technology into Commercial Products and Services

Oregon created but has not yet made funding available for a **Higher Education Technology Transfer Fund** that would support commercialization efforts at members of the Oregon University System. In the meantime, OHSU’s **Technology and Research Collaborations Office** will make available funds to support both commercialization research and initial organization of start-up/spin-off vehicles (up to \$50,000).

Making Capital Available to Bioscience Companies

Encouraging Growth of the Venture Sector

Since the last BIO report, the **Oregon Growth Account** (OGA) created in 1995 has continued to add capital and new external managers. OGA is a subfund within a broader Education Stability Fund managed by the Treasurer’s Office. It receives 1.5 percent of lottery proceeds annually and

is required to invest with a rate-of-return orientation through external managers who will target emerging growth companies in sectors considered strategic by the state, with a concentration on ultimate investments in the State of Oregon. Of the seven external managers selected to date, one (**Northwest Technology Ventures**) is a \$14 million seed-stage fund that does about half its deals in the biosciences. A second external manager based in Washington state has a bioscience orientation.

In 2003, Governor Kulongoski signed a bill reorienting the obligations of the **Oregon Investment Council**, which manages the state public pension plans, to “look first at Oregon opportunities for diversification unless, under the circumstances, it is not prudent to do so.” In response to this change in its investment mandate, the Council contracted with CS First Boston to operate a \$100 million fund of funds that will invest in four or five venture-capital partnerships that agree to significant exposure to Oregon deals, including in the biosciences.

Supporting Bioscience Entrepreneurs and Emerging Bioscience Companies

Business Development Services

The **Oregon Entrepreneurs Forum** provides mentoring services across multiple technology sectors.

Bioscience Industry Organizations

The **Oregon Bioscience Association** promotes the growth and quality of the bioscience sector in the State of Oregon. The Association, which includes biotechnology, medical device, and life science companies, provides a range of services to its members and leads implementation of the Oregon Strategic Plan for Biotechnology Development.

Incubators

Under Development

Both research park projects have plans for incubators. Portland Development Commission anticipates creating a 20,000- to 40,000-square-foot, wet-lab incubator and additional wet-lab multitenant space at the North Macadam district campus.

Growing the Bioscience Workforce

Portland Community College offers a **Biotechnician Program** that focuses on the areas of molecular biology, tissue culture, and protein chemistry. The Program maintains a laboratory with state-of-the-art equipment required to carry out a broad range of typical lab procedures.

Mount Hood Community College’s bioscience program is in an early stage of development. The college is in the process of investing in and developing a strategy emphasizing the bio-

sciences. In June 2003, the College broke ground on a new \$15.6 million Allied Health/Biotechnology building.

OSU offers a professional master's degree in Applied Biotechnology and in **Biological Quality Systems Analysis**.

Portland State University's **Oregon Biotechnology Education Program** provides teacher training workshops at both a Portland metropolitan site and at three rural satellites, during which teachers are trained in the principles and practices of biotechnology and gain experience with hands-on experimental biotechnology curriculum modules. During the school year, the Program provides free equipment loans to teachers in the Program for use in their classrooms. A Mentor Teacher program, in which teachers who have been involved in the Program for a significant number of years and who are familiar with the curricula, plays an active role in providing follow-up support for new teachers in the Program.

Sources of Information

State Contact

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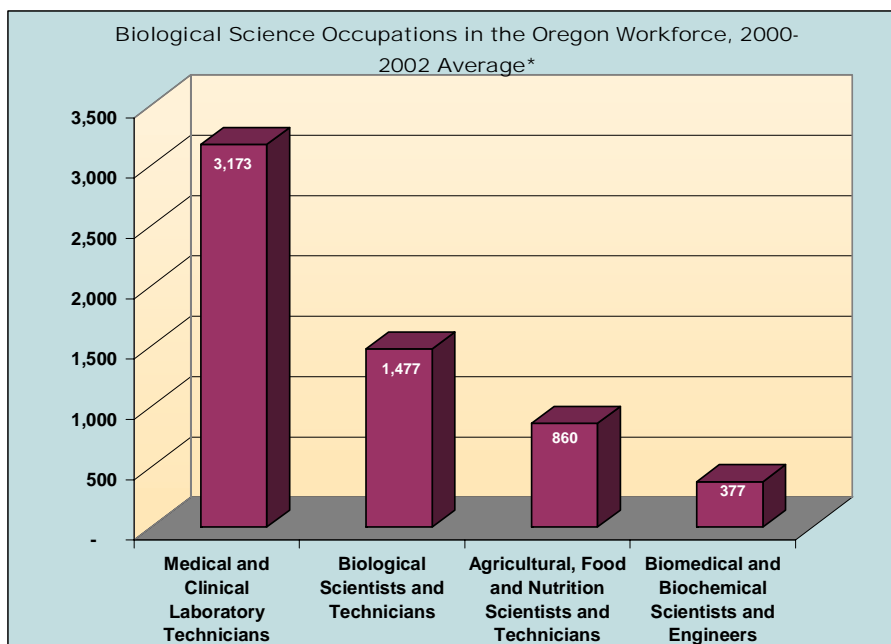
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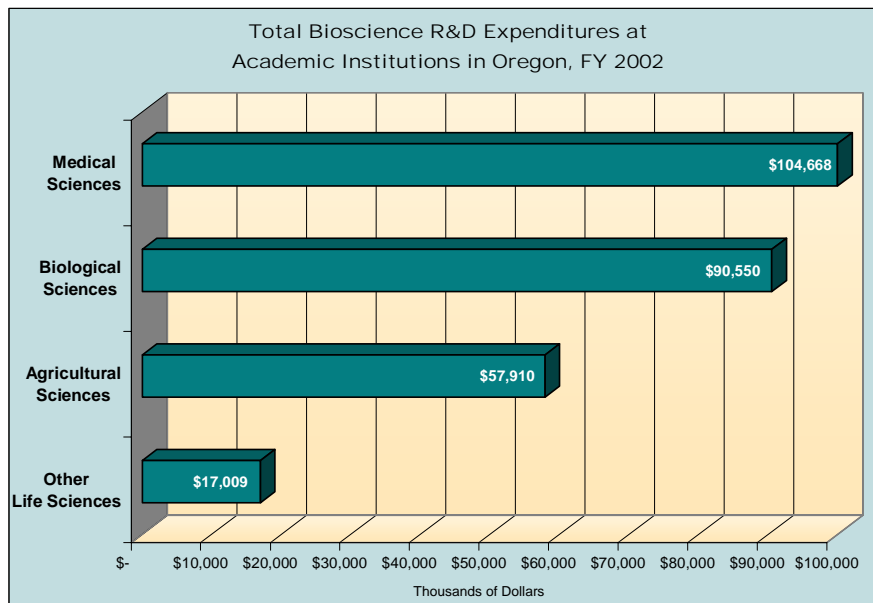
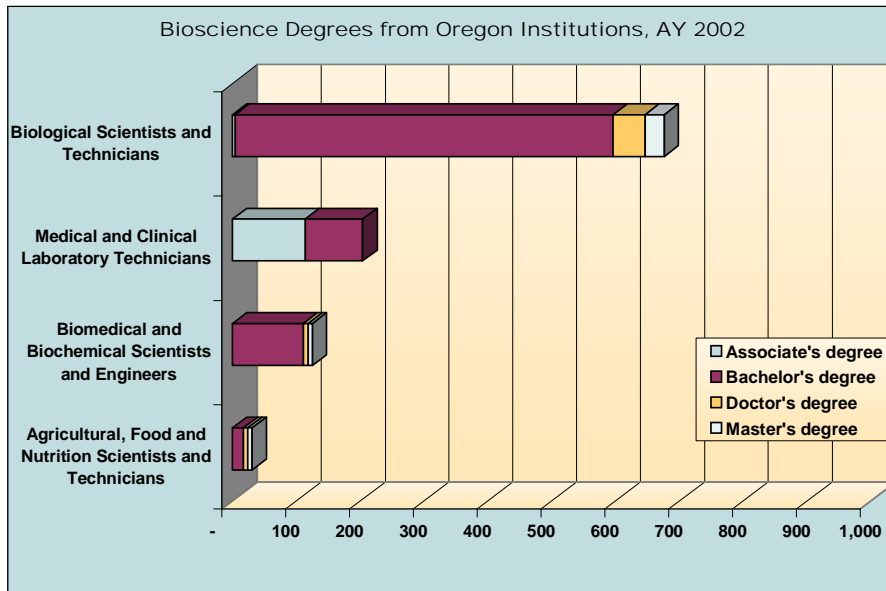
Industry Subsector	Oregon	United States
Agricultural Feedstock & Chemicals		
Establishments 2002	74	3,353
2001-2002 Establishment %Change	7.1%	-0.9%
Employment 2002	1,030	156,759
2001-2002 Employment %Change	3.2%	-5.6%
Share of US Employment	0.7%	100.0%
Location Quotient	0.54	n.a.
Average Wage 2002	\$35,334	\$55,919
Drugs & Pharmaceuticals		
Establishments 2002	37	2,536
2001-2002 Establishment %Change	-2.6%	0.7%
Employment 2002	753	293,179
2001-2002 Employment %Change	-1.6%	4.5%
Share of US Employment	0.3%	100.0%
Location Quotient	0.21	n.a.
Average Wage 2002	\$35,593	\$73,162
Medical Devices & Equipment		
Establishments 2002	101	6,120
2001-2002 Establishment %Change	-1.0%	-0.1%
Employment 2002	2,977	326,201
2001-2002 Employment %Change	-1.4%	-1.3%
Share of US Employment	0.9%	100.0%
Location Quotient	0.74	n.a.
Average Wage 2002	\$45,140	\$53,939
Research & Testing		
Establishments 2002	86	5,149
2001-2002 Establishment %Change	-2.5%	-2.0%
Employment 2002	878	116,733
2001-2002 Employment %Change	-10.7%	0.1%
Share of US Employment	0.8%	100.0%
Location Quotient	0.61	n.a.
Average Wage 2002	\$54,617	\$71,118
TOTAL PRIVATE SECTOR		
Establishments 2002	110,797	7,839,903
2001-2002 Establishment %Change	1.0%	1.4%
Employment 2002	1,319,695	107,577,300
2001-2002 Employment %Change	-1.8%	-1.6%
Share of US Employment	1.2%	100.0%
Location Quotient	n.a.	n.a.
Average Wage 2002	\$33,072	\$36,539

Source: Battelle calculation based on ES-202 data from the Minnesota Implan Group

Note: n.a. = data were not available



*Given the survey basis of these data, an average of FY 2000-2002 employment data best estimated true life science employment in these occupations.



	Oregon	United States	Rank
University R&D Expenditures, FY 2002			
Total (thousands)	\$386,666	\$36,264,060	28
Life Science R&D (thousands)	\$270,137	\$21,357,101	26
Percent of Total R&D	69.9%	58.9%	
Life Sciences Per Capita	\$76.71	\$74.06	
Change in Life Sciences FY1996-2002	58.7%	68.8%	0
NIH Support to Institutions, FY 2002			
Total (thousands)	\$233,541	\$18,886,700	23
Per Capita 2002 Expenditures	\$66.32	\$65.49	
Change in Expenditures FY1997-2002	96.6%	81.9%	0
Higher Education Degrees in Biological Sciences, AY 2002	1,036	107,803	34
Biological Scientists in the Workforce, FY 2000-2002 Avg.	5,887	461,973	27