



Overview and Summary of Recent Initiatives

Since the last BIO report, bioscience became a cornerstone of Washington state's economic development strategy, as legislation was passed under the Gregoire administration creating a \$350 million **Life Sciences Discovery Fund** (SB 5581), an idea that emerged from **Bio21** study group that met over the previous 2 years. Starting in 2008, the fund will begin allocating \$35 million annually from tobacco settlements to research with economic-development potential, possibly including recruitments and facility enhancements. The state projects that it will lever \$1 billion in additional external research funding over its 10-year lifetime and create 20,000 jobs within about 15 years.

The Seattle region is building a particular focus on global health and has started an annual **Pacific Health Summit**. Seven university, nonprofit, and charitable institutions recently joined to create **Puget Sound Partners for Global Health**, a collaborative that has resources available for both pilot research and training grants. The University of Washington (UW) also recently received approval to create a new **Department of Global Health**. Both initiatives were supported by the Bill & Melinda Gates Foundation, which contributed \$20 million to the new department's start-up costs.

Building Bioscience R&D Capacity

Recent state investments in facilities

Both major public universities are in the process of adding bioscience research facilities across the state:

- **UW Medicine** is constructing \$170 million of interdisciplinary research space in the de facto research park that is developing in South Lake Union, across from the main UW campus. Phase I (100,000 square feet) is open, and Phase II (300,000 square feet) breaks ground this year. Revenue bonds are backed in part by anticipated increase in indirect cost recovery.
- **Bioproducts, Sciences, and Engineering Laboratory** is a \$24 million joint project of Battelle's Pacific Northwest National Laboratory and the Washington State University (WSU) Tri-Cities campus. It will receive \$13 million from the state capital budget.
- **Bioengineering-Genome Sciences Building**, a 265,000-square-foot, \$150 million building at the University of Washington in Seattle funded in part by a \$70 million gift from the Gates Foundation.
- **Biotechnology/Life Sciences Building**, a 117,210-square-foot, four-story, \$57.1 million research building at WSU in Pullman.

At the private institutions, Fred Hutchinson Cancer Research Center continues its multiyear initiative to create new space and consolidate operations on its 14.3-acre campus at South Lake Union, and the Institute for Systems Biology previously opened a 65,000-square-foot, \$100 million facility at North Lake Union near the main UW campus.

Research programs

The **Life Science Discovery Fund** will provide the first regular source of public support for strategic life science R&D in the state. The fund adopts a broad definition of the life sciences, encompassing biotech, pharmaceuticals, biomedical technologies, life system technologies, nutraceuticals, “cosmeceuticals,” food processing, environmental, and biomedical devices. It is governed by an 11-member board of trustees that will evaluate grants for their potential health-care impact, future employment impact, and geographic diversity. A 2:1 match from external sources will be required. The executive director is the retired president of UW, a former leader of the university’s bioengineering programs.

Faculty development programs

Puget Sound Regional Partners has a pool of \$500,000 for **Research and Technology Grants**, up to \$50,000 each, to help new regional collaborations in global health attract long-term funding. These grants may be used to attract new investigators.

Encouraging Academic/Industrial Interaction

The **Washington Technology Center**, a state-funded nonprofit intermediary, offers a series of grant programs across multiple disciplines aimed at linking in-state companies with academic researchers at UW and WSU. The **Research and Technology Development** grant offers up to \$100,000 a year for 2 years, matched 1:1 by larger firms and at lower ratios for small and start-up companies. There is also a smaller version for exploratory projects, which has been used by medical device and diagnostic firms.

Moving Technology into the Marketplace

Commercializing university technology

The **Washington Research Foundation**, which once handled technology transfer for UW but is now a stand-alone nonprofit endowed by profits from that period, maintains its own \$500,000 **Gap Fund** for precommercialization research. WRF also has partnered with UW by contributing \$250,000 to the university’s internal **Technology Gap Innovation Fund**, likewise funded at \$500,000. Both funds have a similar purpose, to fund additional research necessary to make discoveries suitable for licensing or company start-up. The UW fund is structured on a royalty payback basis.

Supporting bioscience entrepreneurs and emerging companies

In Eastern Washington, commercialization assistance is available from two organizations: the **Spokane Intercollegiate Research and Technology Institute (SIRTI)** and **Connect Northwest**, a mentoring organization modeled on the CONNECT program in San Diego.

Making Capital Available

Pre-seed and seed capital

Pre-seed investments in the biosciences are available from the following sources:

- **WRF Capital**, a \$25 million seed fund operated by the Washington Research Foundation
- **Alliance of Angels**, an affiliate of the Washington Technology Council.

Washington exempts SBIR/STTR grants and those from the Life Sciences Discovery Fund from its main business tax.

Venture capital

Accelerator Corporation is a \$23 million venture fund created by several local institutions including the Institute for Systems Biology, the Alexandria Real Estate Equities group, and several existing regional venture investors. The fund particularly targets ISB spin-outs and tenants of Alexandria's "accelerator" space in its wet-lab facilities in the Eastlake neighborhood.

Washington State Investment Board's private equity program has a memorandum of understanding with **Washington Technology Center** to provide priority access for Washington companies to the general partners of these venture firms.

Providing Space for Bioscience Companies

Incubators

Since the last BIO report, the **SIRTI Technology Center**, a 30,000-square-foot, \$6 million, wet-lab-equipped facility, opened in Spokane.

Bioscience research parks

Since the last BIO report, private developers continued to build the de facto research park that is emerging in **South Lake Union**, across the lake from the main UW campus. Spurred by anchors such as the Fred Hutchinson Cancer Center, UW's presence in space rented from Paul Allen's Vulcan Ventures, and the Seattle Biomedical Research Institute (SBRI), more than 500,000 square feet of bioscience space is on-line, and additional space is planned. UW's commitment will triple its presence in the district, which is a priority development area for the City of Seattle, which eased zoning restrictions and is putting in place infrastructure improvements.

Addressing Talent Needs

Recruiting management talent

UW's **Center for Innovation and Entrepreneurship** provides a fellowship for UW graduate students from business, engineering, law, medicine, and sciences to explore the viability of transforming research into ventures.

Specialized postsecondary programs

UW's extension program is in the second year of offering a **Certificate in Technology Commercialization** developed originally by the Department of Bioengineering.

Puget Sound Partners for Global Health offers **Training and Education Grants** to support involvement of students and trainees (such as medical residents) in programs based in developing nations.

Shoreline Community College operates an unusually vigorous **Northwest Biotechnology/Biomedical Education and Careers Consortium** that links local college training programs to bioscience industry.

K-12 outreach programs

SBRI operates **BioQuest**, a science education program for high school students that is located on the first floor of its South Lake Union headquarters building.

Life Sciences Education Advancement Partnership (LEAP) is a regional forum to coordinate life science outreach programs, sponsored by the Northwest Association for Biomedical Research.

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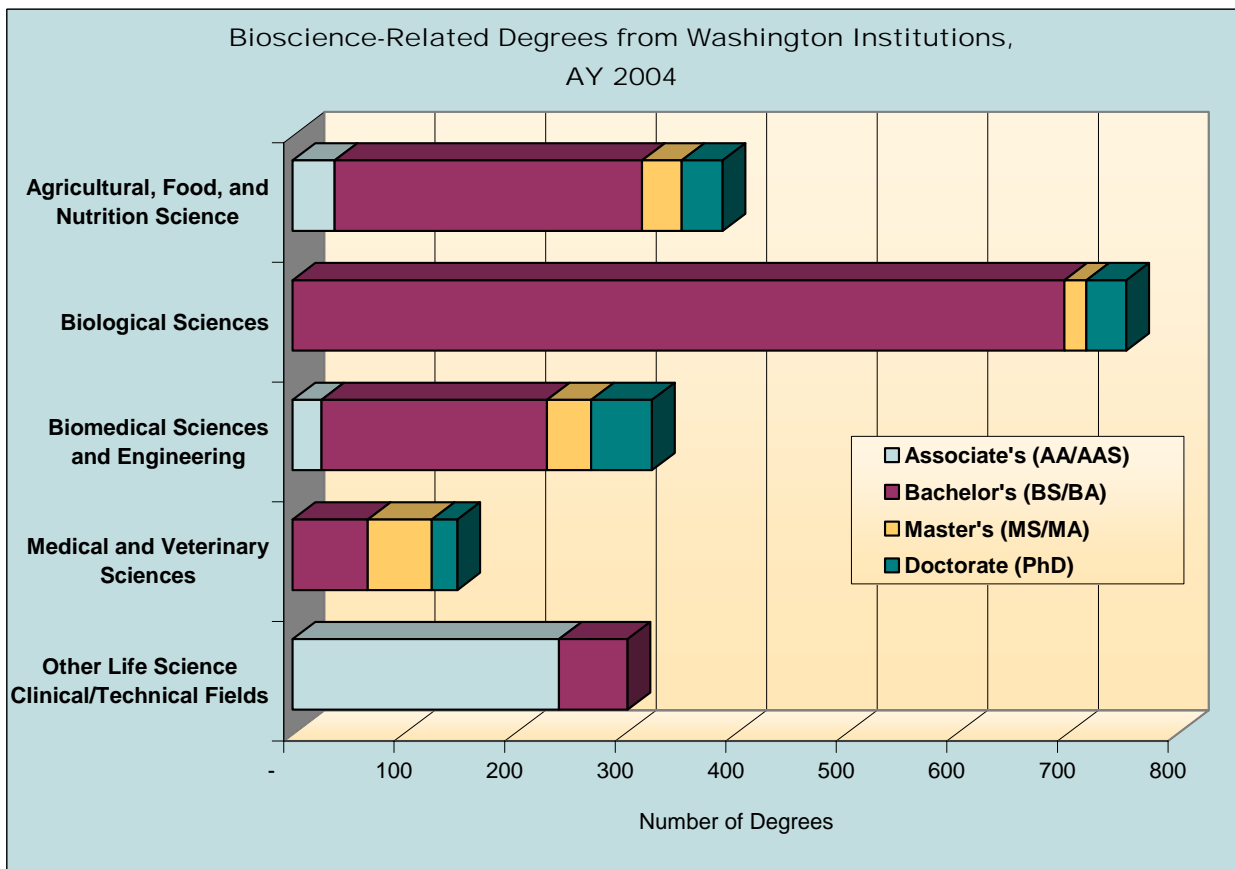
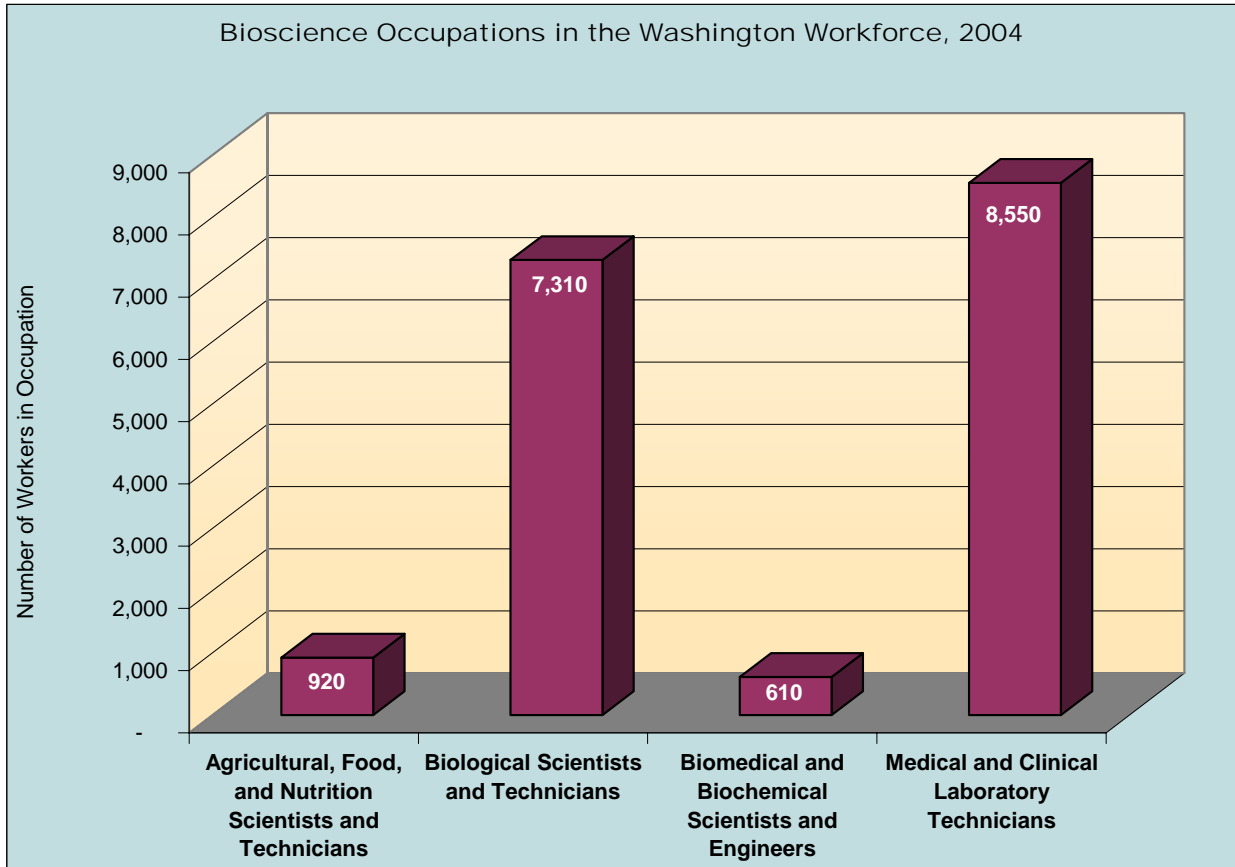
The mission of the Washington Biotechnology & Biomedical Association (WBBA) is to be the leader in advancing the state's bioscience research and industry sector through business development, information, and member services.

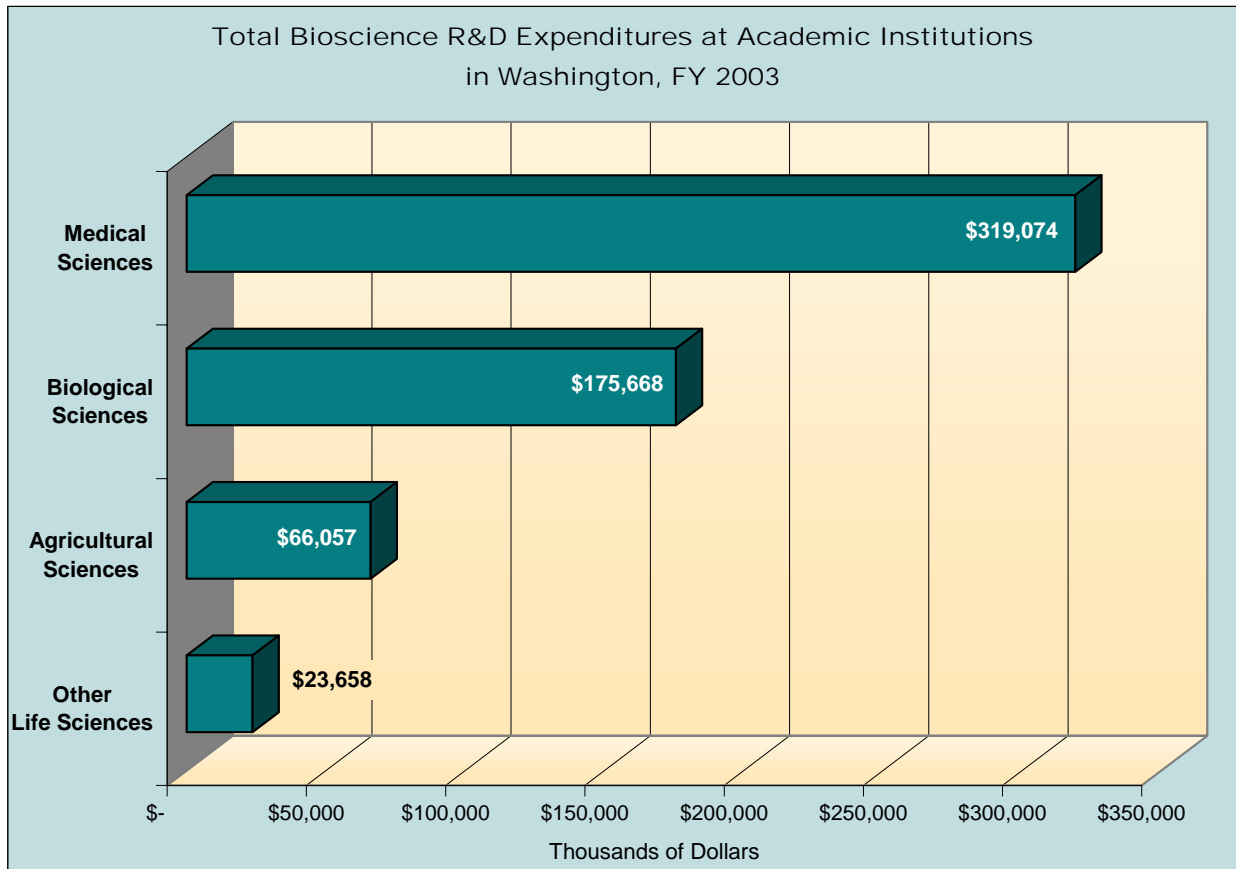
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Industry Subsector	Washington	United States
Agricultural Feedstock & Chemicals		
Establishments 2004	29	2,111
2001-2004 Establishment % Change	-24.7%	0.4%
Employment 2004	712	104,893
2001-2004 Employment % Change	11.7%	-6.9%
Share of U.S. Employment	0.7%	100.0%
Location Quotient	0.34	n.a.
Average Annual Wage 2004	\$54,598	\$63,383
Direct-Effect Employment Multiplier	5.60	10.91
Total Employment Impact	3,991	1,212,094
Drugs & Pharmaceuticals		
Establishments 2004	58	2,589
2001-2004 Establishment % Change	1.8%	-0.6%
Employment 2004	1,795	313,207
2001-2004 Employment % Change	-22.5%	2.7%
Share of U.S. Employment	0.6%	100.0%
Location Quotient	0.29	n.a.
Average Annual Wage 2004	\$66,115	\$79,303
Direct-Effect Employment Multiplier	5.99	9.51
Total Employment Impact	10,750	2,731,321
Medical Devices & Equipment		
Establishments 2004	405	15,190
2001-2004 Establishment % Change	-0.8%	0.2%
Employment 2004	7,593	411,460
2001-2004 Employment % Change	2.3%	-3.6%
Share of U.S. Employment	1.8%	100.0%
Location Quotient	0.92	n.a.
Average Annual Wage 2004	\$57,466	\$56,449
Direct-Effect Employment Multiplier	2.87	4.56
Total Employment Impact	21,759	1,817,705
Research, Testing, & Medical Laboratories		
Establishments 2004	484	20,565
2001-2004 Establishment % Change	10.8%	19.4%
Employment 2004	11,461	413,550
2001-2004 Employment % Change	19.1%	8.2%
Share of U.S. Employment	2.8%	100.0%
Location Quotient	1.38	n.a.
Average Annual Wage 2004	\$63,735	\$65,414
Direct-Effect Employment Multiplier	2.50	3.15
Total Employment Impact	28,624	1,272,936
TOTAL PRIVATE SECTOR		
Establishments 2004	206,910	8,156,137
2001-2004 Establishment % Change	-4.3%	4.8%
Employment 2004	2,196,274	109,249,195
2001-2004 Employment % Change	-0.6%	-0.7%
Share of U.S. Employment	2.0%	100.0%
Location Quotient	n.a.	n.a.
Average Annual Wage 2004	\$38,833	\$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.





	Washington	United States	Rank
University R&D Expenditures, FY 2003			
Total (\$ thousands)	\$869,695	\$40,104,621	14
Life Science R&D (\$ thousands)	\$599,204	\$24,062,088	14
Percent of Total R&D	68.9%	60.0%	
Life Sciences Per Capita	\$97.73	\$82.74	
Change in Life Sciences FY 1999-2003	50.1%	52.7%	
NIH Support to Institutions, FY 2004			
Total (\$ thousands)	\$815,256	\$22,556,459	8
Per Capita Expenditures	\$132.96	\$77.56	
Change in Expenditures FY 2000-2004	53.7%	53.2%	
Higher Education Degrees in Bioscience Fields, AY 2004	1,920	111,329	21
Bioscience Occupations in the Workforce, 2004	17,390	616,140	12