



The Contributions of the Biosciences in Colorado

At a Glance:

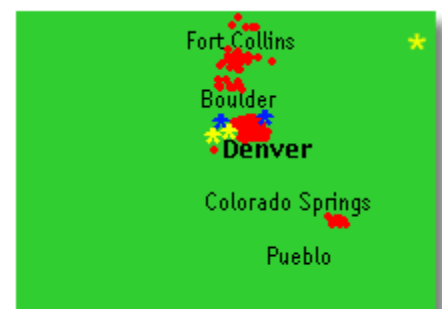
Bioscience Companies: **347**
Number of Bioscience Jobs: **11,885**
Indirectly Supported Jobs: **20,204**
Average Employee Salary: **\$61,414**
Total Taxes Generated: **\$415.7 million**

Background: Biotechnology -- the use of biological processes to solve problems or make useful products -- may be only 30 years old, but it is already delivering on its promise, providing hundreds of new medicines and diagnostics, as well as improving foods and technologies that make manufacturing cleaner and more efficient.

Colorado's bioscience industry is predominantly clustered within the Greater Denver region, Fort Collins, Boulder, and Colorado Springs. Three of the Colorado metro areas that make up the Denver Consolidated Metropolitan Statistical Area (CMSA) account for 80 percent of the state's bioscience employment and 73 percent of establishments. Clustering of companies offers an opportunity for Colorado to create a critical mass of bioscience companies by networking existing firms and providing an infrastructure to support their growth and development.

Colorado is one of only two states where a technology position is cabinet level and reports to the governor. The office is actively implementing statewide strategies in workforce creation, business development, and research growth.

Companies: Nearly three hundred and fifty bioscience companies make their home under the gaze of the Rocky Mountains. These companies are conducting cutting edge research to find cures to diseases such as cancer, heart disease, and infectious diseases; improve agricultural yields; and develop cleaner, more efficient manufacturing methods.



Academic Institutions: Bioscience firms tend to geographically concentrate around academic health centers and research universities and Colorado's concentration provides a basis for further building a critical mass. Colorado has fostered a healthy partnership between academia and the private sector to speed basic science discoveries into novel treatments for patients. The University of Colorado system is home to significant research centers that support Colorado's biopharmaceutical industry. The Colorado Alliance for Bioengineering is responsible for the coordination of biotech activities among faculty in all universities throughout the state, while the

Colorado Bioprocessing Center at the Colorado State University in Fort Collins develops therapeutic compounds and biologics for biotech companies.

Employment, Salaries & Taxes: In 2003-2004, the biosciences industry sectors in the state employs 11,885 workers in four major sectors with an average salary of \$61,414. In addition, more than 20,204 additional service sector jobs were generated to support this growing industry for a total employment impact of 32,089 jobs.

The state’s biosciences and service providers also contributed an estimated \$415.7 million in local, state, and federal taxes.

Colorado Biosciences Industry Profile: FY 2004

<u>Industry Sector</u>	<u>Companies</u>	<u>Employees</u>	<u>Salary Average</u>	<u>Total Income</u>
Agriculture and Feedstock	46	634	\$53,274	\$33,775,716.00
Drugs and Pharmaceuticals	56	2772	\$65,288	\$180,978,336.00
Medical Devices and Equipment	132	7576	\$49,805	\$377,322,680.00
Research and Testing	113	2101	\$77,291	\$162,388,391.00
Total 2004	347	11,885	61,414.00	\$724,465,113.00

Sources: Battelle 2004; BLS.gov

Colorado Biosciences Economic Impact Summary

Direct Jobs	11,885	
Indirect/Induced Jobs @ 2.7x	20,204	Biosciences Industry Employment Impacts Defined:
Total Jobs	32,089	○ Direct effects—employee payroll that contributes to local and Colorado economy in purchases and taxes paid.
Salaries (Direct)	\$724.46 M	○ Indirect/Induced effects—the economic activity generated among Colorado businesses to meet the industry’s demand for goods and services.
Salaries (Induced)	616.93 M	
Total Salary	\$1,341B	
Total Direct Employee Federal, State, Local Taxes Generated @ 31% Average	\$415.7 M	

Sources: Brookings Institution 2004, US Census Bureau

Other Colorado Bioscience Indicators: Several national reports have rated Colorado economic development in the top tiers of commitment to technology industry growth:

Business Competitiveness Report 2004

Metro Competitiveness Report 2004

<u>State</u>	<u>National Rank</u>	<u>State</u>	<u>National Rank</u>
• Massachusetts	#1	• Seattle	#1
• Utah	#2	• Raleigh	#2
• Washington	#3	• Portland	#3
• Minnesota	#4	• Boston	#4
• Colorado	#5	• Denver	#5

Source: www.beaconhill.org

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Entrepreneurial Expertise: Entrepreneurship development is a key element in the on-going efforts by Colorado state and regional government efforts to retain and grow local biosciences companies. Entrepreneurial capacity and behavior are prime drivers of economic growth and job creation and see the economic potential of new technologies and apply them to business concept innovation.

Most Innovation-Entrepreneurial Regions 2005

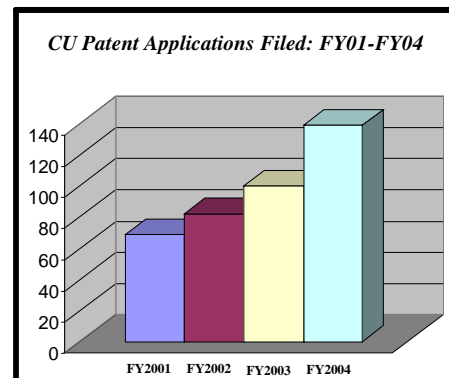
Companies Receiving Venture Funding Investment Per Gross State Product (GSP)

<u>State</u>	<u>National Rank</u>	<u>State</u>	<u>Score (Highest Value)</u>
• Fort Collins	#1	• Massachusetts	82.0
• Raleigh	#2	• California	79.1
• Provo	#3	• Rhode Island	76.2
• Austin	#4	• Colorado	72.0
• Boston	#5	• Maryland	70.2
• Denver	#6	• New Hampshire	69.9

Sources: SBA and Edward Love Foundation

Source: State Technology and Science Index, Milken Institute, March 2004

Research and Technology Transfer: All Colorado academic institutions are driving research and technology transfer. The following graph and table are illustrative of tech transfer occurring at universities across the state of Colorado.



Source: CU Central Administration

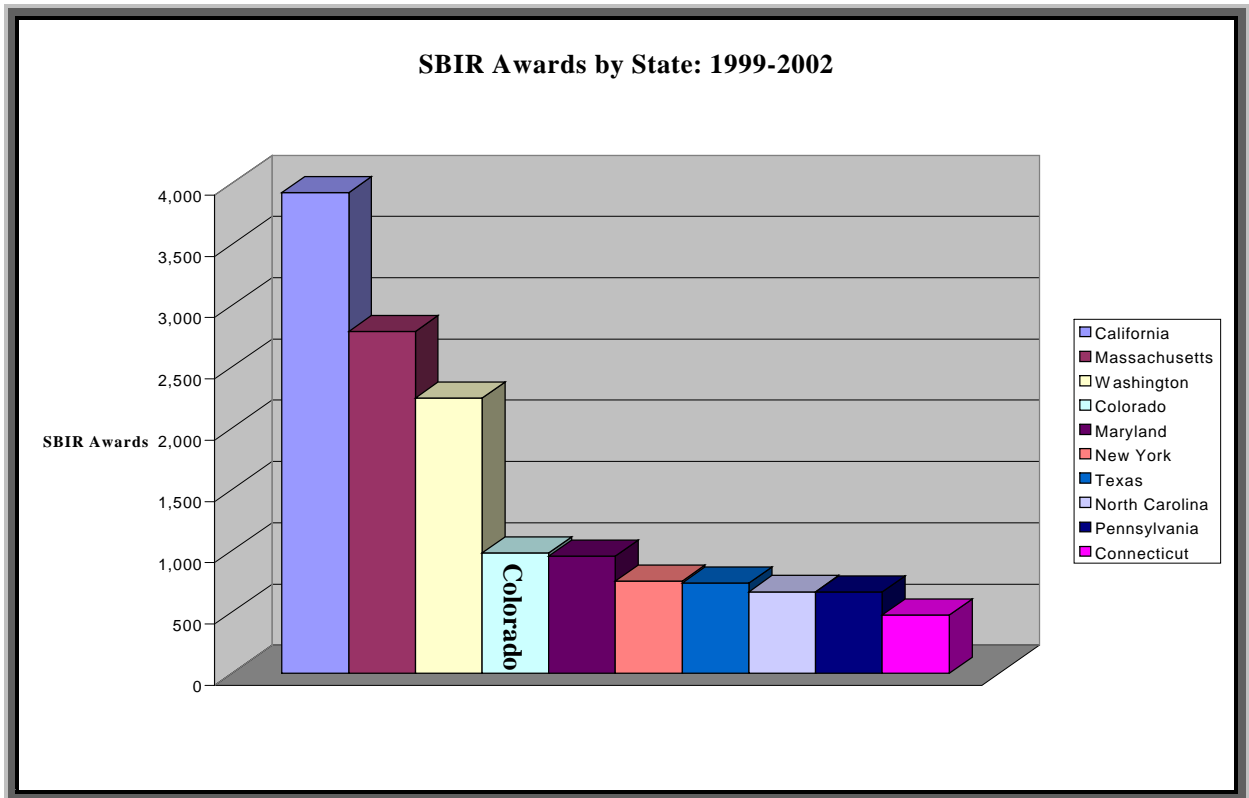
CU Technology Transfer Performance Metrics by Fiscal Year

	FY01	FY02	FY03	FY04
Invention disclosures	121	124	147	177
Patent applications filed	69	82	100	139
Options and licenses	14	33	41	59
Revenue received*	\$2.2M	\$3.4M	\$5.8M	\$21.7M
Start-up companies	3	6	9	9

* does not include revenue derived from legal settlements which in FY2003 amounted to \$28.1M and in FY2004 amounted to **\$6.7M**.

Source: CU Central Administration

Federal Grants: Two additional factors in the vitality of the biosciences in Colorado are the federal awards to support both basic research activities, and basic innovation grants to small companies pursuing commercial viability of research conducted in both public and private laboratories in the state. Between 1999 and 2002, Colorado biotechnology companies received 984 Small Business Innovation Research Grants (SBIR), ranking 4th in the nation.



Source: www.grants1.nih.gov

Top NIH Funding Ranked By States FY 2003 (Top 100 U.S. Centers)

<u>State</u>	<u>NIH Awards</u>	<u>National Rank</u>
• California	6,271	#1
• Massachusetts	4,450	#2
• New York	4,310	#3
• Pennsylvania	3,366	#4
• Maryland	2,196	#5
• North Carolina	1,895	#6
• Colorado	913	#14

Source: www.grants1.nih.gov

References:

Colorado Bioscience Association, www.cobioscience.com

Battelle Technology Partnership Practice and SSTI, *Laboratories of Innovation: State Bioscience Initiatives 2004*, June 2004, <http://www.bio.org/local/battelle2004>

Milken Institute, *Biopharmaceutical Industry Contributions to State and U.S. Economics*, October 2004, http://www.milkeninstitute.org/pdf/biopharma_report.pdf

More Information: For more information, please visit www.bio.org or contact John Sloan, director for Grassroots Programs at BIO, at (202) 962-9506 or jsloan@bio.org.