



BIOSCIENCE Metro Denver Industry Cluster Profile

The bioscience industry cluster is a dynamic, entrepreneurial industry with successful bioscience companies often spawning new companies. Further, the bioscience industry cluster contributes to the growth of Metro Denver's other industry clusters, with strong linkages between the energy and information technology industry clusters.

With 11,700 workers in over 350 companies, the seven-county* Metro Denver area has a significant foundation on which to build a bioscience industry cluster, enhanced by renowned research institutions and universities. The University of Colorado at Denver and Health Sciences Center (UCDHSC), National Jewish Medical Research Center, The Children's Hospital Research Institute and the Eleanor Roosevelt Institute at the University of Denver are just a few examples of the research and educational institutions located in Metro Denver that support the bioscience industry cluster.

Another operating advantage for bioscience companies exists at the former Fitzsimons Army Medical Center which is being transformed into a state-of-the-art, integrated life sciences community. The 578-acre Fitzsimons site in Aurora is undergoing a \$4.0-billion renovation and transformation into a square mile dedicated to excellence in patient care, education, basic science and applied research, as well as bioscience research and development. As projects are completed during the next 20 years, the Fitzsimons site will evolve into one of the most advanced bioscientific communities in the world.

The Fitzsimons redevelopment effort is anchored by the 227-acre health sciences campus of the University of Colorado at Denver and Health Sciences Center (UCDHSC), the University of Colorado Hospital (UCH), the Children's Hospital and the affiliated 160-acre Colorado Bioscience Park Aurora. The Colorado Bioscience Park Aurora will provide opportunities, equipment, facilities and resources for early stage and startup research-oriented biotechnology, drug-development and medical device companies to develop. There will also be facilities for expansion companies and anchor tenants at the site. The proximity of these companies will provide significant opportunities. More information on the Fitzsimons redevelopment project can be found at www.colobio.com.

The bioscience industry cluster is a diverse cluster that includes two sub-sectors: 1) pharmaceuticals and biotechnology; and 2) medical device and instruments. Pharmaceutical companies manufacture, research and develop pharmaceutical drugs. Biotechnology companies utilize cellular and molecular biology and medicinal chemistry to develop and commercialize therapeutic medicines. The medical device and instruments sub-sector includes the engineering, research, design and manufacturing of medical equipment used in the health care industry.

*Metro Denver includes seven counties: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas and Jefferson counties.

Pharmaceuticals and Biotechnology

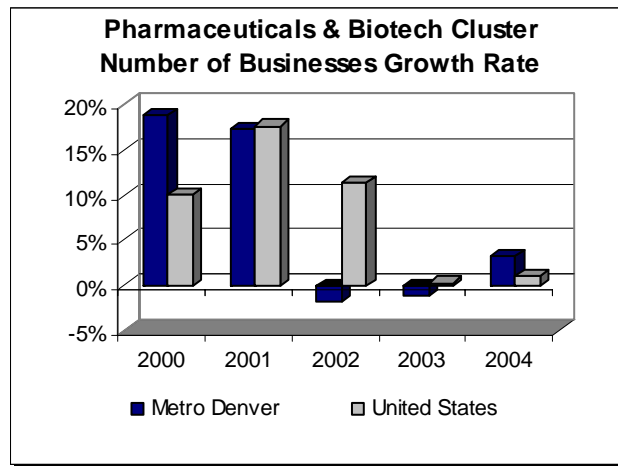
Pharmaceutical companies manufacture, research and develop pharmaceutical drugs whereas biotechnology companies utilize cellular and molecular biology and medicinal chemistry to develop and commercialize therapeutic medicines. The pharmaceuticals and biotechnology sub-sector includes over 160 companies classified in five six-digit North American Industry Classification System (NAICS) codes.

Metro Denver ranks 23rd out of the 50 largest metro areas in pharmaceuticals and biotechnology employment concentration in 2004. With direct employment in pharmaceuticals and biotechnology of nearly 4,000 workers, Metro Denver also ranks 23rd in absolute employment compared to the 50 largest metro areas.

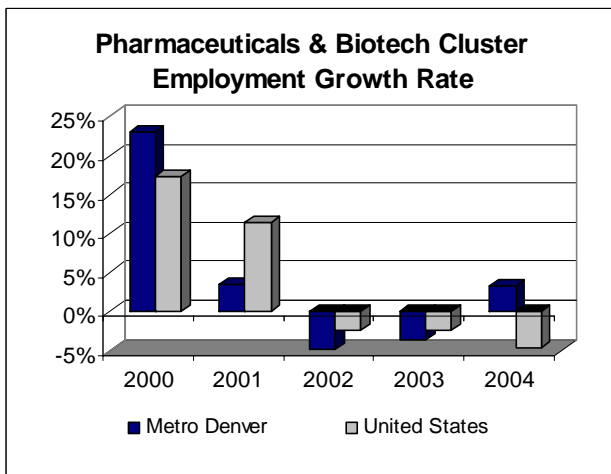
	Metro Denver	U.S.
Direct Employment 2004	3,920	456,550
Total Direct Employment Growth 1999-2004	20.5%	18.6%
Avg. Annual Direct Employment Growth 1999-2004	3.8%	3.5%
Number of Direct Industry Cluster Companies 2004	163	11,683
Direct Employment Concentration	0.4%	0.4%

Pharmaceuticals and Biotechnology Companies

- About 163 pharmaceutical and biotechnology companies were located in the seven-county Metro Denver area in 2004.
- The number of pharmaceutical and biotechnology companies has grown 39.3% from 1999 to 2004 compared to 45.9% growth nationally.
- About 66% of the pharmaceuticals and biotechnology companies employ less than 10 people while about 2% of the companies employ more than 250 employees.
- Based on the number of companies in a sector, most companies in the pharmaceuticals and biotechnology sector are either involved in pharmaceutical preparations or are noncommercial research organizations.



Pharmaceuticals and Biotechnology Employment



- Pharmaceuticals and biotechnology companies employ about 0.4% of Metro Denver's total employment base, similar to the 0.4% concentration nationally.
- The pharmaceuticals and biotechnology sector directly employs 3,920 people in the seven-county Metro Denver area.
- Pharmaceuticals and biotechnology employment

increased 20.5% from 1999 to 2004 compared to 18.6% growth nationally, representing average annual growth rates of 3.8% and 3.5%, respectively.

- Three-quarters of the employment in the pharmaceuticals and biotechnology sector is located in Boulder (56%) and Broomfield (21%) counties.

Pharmaceuticals and Biotechnology Wages

The total payroll in the pharmaceuticals and biotechnology industry sector in Metro Denver reached an estimated \$287.9 million in 2003. The 2003 average annual salary for a pharmaceuticals and biotechnology worker was \$73,400 in Metro Denver compared to the national average of \$77,500.

Metro Denver Occupational Salaries, 2004**

Medical and Clinical Laboratory Technicians	\$34,310
Medical and Clinical Laboratory Technologists	\$45,880
Biomedical Engineers	\$65,900
Biochemists and Biophysicists	\$68,720

**Salary data is for the six-county Denver Metropolitan Statistical Area (MSA), which does not include Boulder County. May 2004 mean annual salary data for additional occupations and geographical areas are available from the U.S. Bureau of Labor Statistics, www.bls.gov.

Major Pharmaceutical and Biotechnology Companies

- Allos Therapeutics
www.allos.com
- Amgen Inc.
www.amgen.com
- GlobelImmune Inc.
www.globeimmune.com
- Myogen
www.myogen.com
- OSI Pharmaceuticals
www.osip.com
- Pharmion
www.pharmion.com
- Replidyne, Inc.
www.replidyne.com
- Roche Colorado Corp.
www.rochecolorado.com
- Sandoz, Inc.
www.sandoz.com
- SomaLogic, Inc.
www.somallogic.com

Medical Device and Instruments

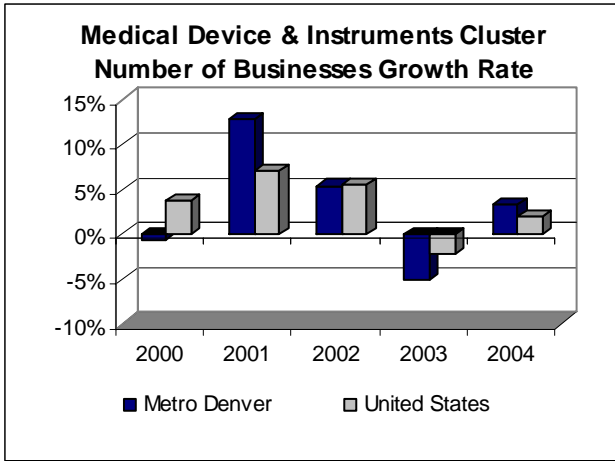
The medical device and instruments industry includes the engineering, research, design and manufacturing of medical equipment used in the health care industry. The medical device and instruments sub-sector includes nearly 200 companies classified within eight different six-digit NAICS codes.

Metro Denver ranks 9th out of the 50 largest metro areas in medical device and instruments component employment concentration in 2004. With direct employment in medical device and instruments of over 7,700 workers, Metro Denver ranks 10th in absolute employment compared to the 50 largest metro areas.

	Metro Denver	U.S.
Direct Employment 2004	7,749	424,945
Total Direct Employment Growth 1999-2004	1.7%	1.2%
Avg. Annual Direct Employment Growth 1999-2004	0.3%	0.2%
Number of Direct Industry Cluster Companies 2004	191	11,599
Direct Employment Concentration	0.7%	0.4%

Medical Device and Instruments Companies

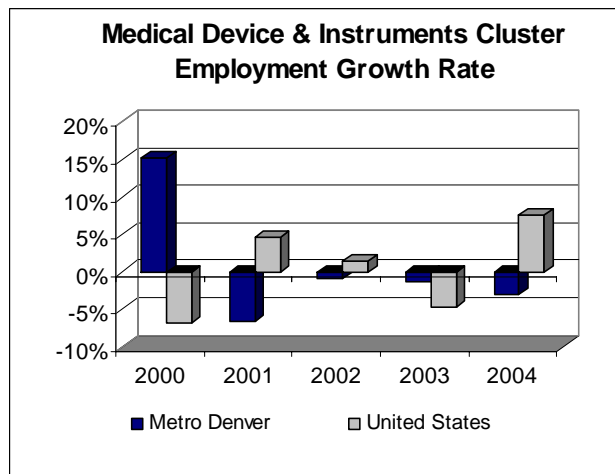
- About 191 medical device and instrument companies were located in the seven-county Metro Denver area in 2004.



- The number of medical device and instruments companies has increased 15.8% from 1999 to 2004 compared to 16.8% growth nationally.
- About 60% of the medical device and instruments companies employ less than 10 people while 4% of the companies employ more than 250 employees.
- The majority of companies in the medical device and instruments sector manufacture surgical and medical instruments or surgical appliances and supplies.

Medical Device and Instruments Employment

- Medical device and instrument companies employ about 0.7% of Metro Denver's total employment base, compared to the 0.4% concentration nationally.
- The medical device and instruments industry sector directly employs 7,749 people in Metro Denver.
- Medical device and instruments employment has increased 1.7% between 1999 and 2004 compared to 1.2% growth nationally, representing average annual growth rates of 0.3% and 0.2%, respectively.
- Medical device and instruments employment is concentrated in Boulder (40%), Jefferson (28%) and Arapahoe (19%) counties.



Medical Device and Instruments Wages

The total payroll in the medical device and instruments industry sector in Metro Denver reached an estimated \$428.5 million in 2003. The 2003 average annual salary for a medical device and instruments worker was \$55,300 in Metro Denver compared to the national average of \$56,300.

Major Medical Device and Instruments Companies

- AlloSource
www.allosource.org
- Baxa Corporation
www.baxa.com
- Cobe Cardiovascular, Inc.
www.cobecv.com
- Gambro BCT
www.cobebct.com
- Medtronic, Inc.
www.medtronic.com
- Valleylab
www.valleylab.com

Key Reasons for Bioscience Companies to Locate in Metro Denver

Metro Denver is an emerging bioscience location offering:

1. The ability to recruit and retain technical and scientific employees.

- With 33.7% of the adult population having completed a bachelor's degree or higher, Colorado ranks as the fourth most educated state in the country, behind Massachusetts, Maryland and Connecticut. (*American Community Survey, 2004*)
- Colorado ranks fourth in the number of science and engineering graduate students enrolled in doctorate-granting institutions. (*Corporation for Enterprise Development, 2004*)
- Metro Denver offers eleven higher education institutions with Biosciences programs. Indeed, the University of Colorado at Boulder is the number two ranked university in the nation for Physics Specialties: Atomic/Molecular/Optical/Plasma. (*U.S. News & World Report, 2005*)
- Metro Denver is the home of numerous university and bioscience research assets including such institutions as the University of Colorado at Denver and Health Sciences Center, National Jewish Medical Research Center, Barbara Davis Center for Childhood Diabetes, the Eleanor Roosevelt Institute and the Webb-Waring Institute for Cancer, Aging and Antioxidant Research.
- Denver ranked among the top 30 regions in the U.S for BioConvergence, which is the growing integration of bio- and information technologies into the health care industry. (*AngelouEconomics, June 2005*)
- Colorado residents enjoy an active, outdoor lifestyle contributing to our Mountain West quality of life. Metro Denver ranked as the fifth fittest U.S. city. (*Men's Fitness, 2005*)

2. Affordable operating costs.

- Bioscience companies can recruit affordable, productive workers in Metro Denver with an average wage for bioscience workers slightly below the national average.
- Fitzsimons offers a variety of real estate opportunities for bioscience companies, ranging from fully furnished executive suites to build-to-suit labs, R&D and office space.

3. Favorable tax policies.

- With a flat rate of 4.63% of federal taxable income, Colorado has one of the lowest corporate income tax rates in the country. (*The Tax Foundation, 2004*)
- Colorado has the eighth most business-friendly tax climate in the nation according to the State Business Tax Climate Index. (*The Tax Foundation, 2004*)
- Colorado places second in the U.S. Economic Freedom Index which also notes that Colorado has the fewest regulatory barriers and ranks high in the fiscal sector. (*Pacific Research Institute for Public Policy, 2004*)

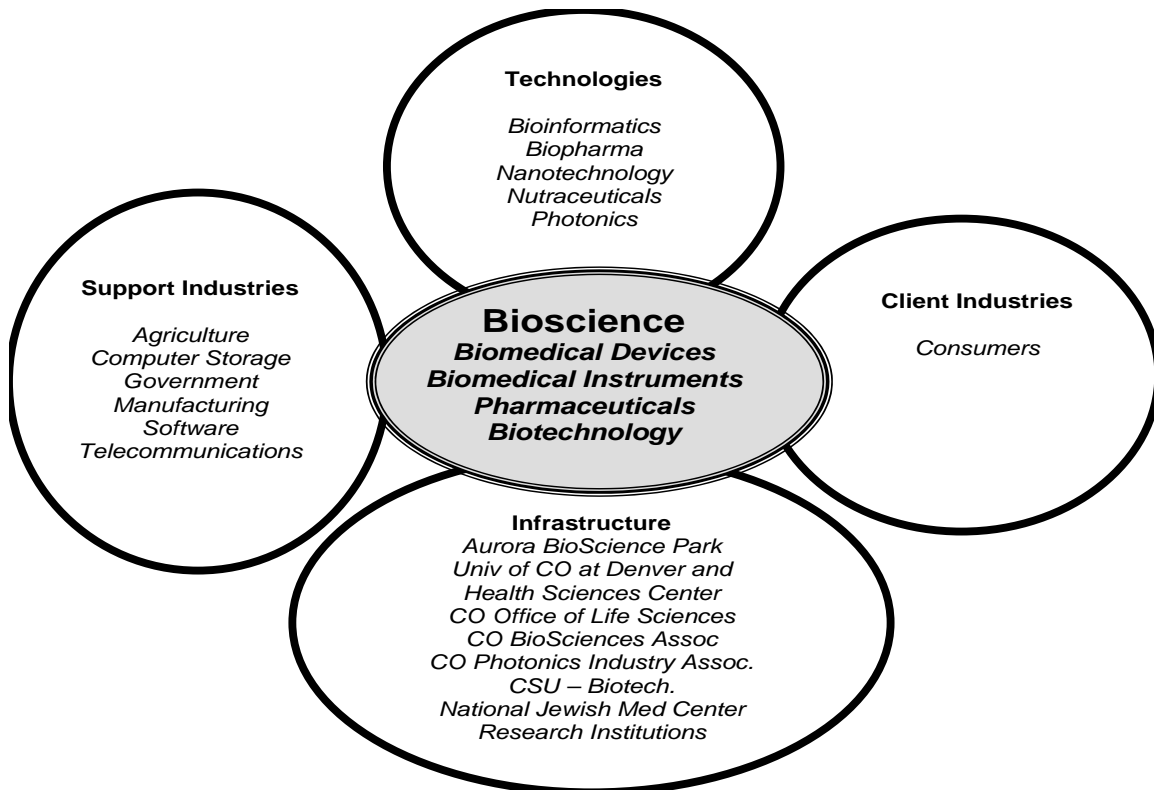
4. Access to financial resources to fund research and development.

- Colorado has five venture firms currently investing in Bioscience: Morgenthaler Ventures, Sequel Venture Partners, Tango, Boulder Ventures and Aweida Capital Management.
- Colorado offers several public/private sources of business funding including the Colorado Small Business Development Centers (www.state.co.us/oed/sbdc/), Certified Capital Companies (www.state.co.us/oed/finance/capco.cfm) and the Colorado Venture Capital Authority (www.state.co.us/oed/finance/VCA.shtml).
- Metro Denver offers two incubators that serve bioscience firms: Fitzsimons Bioscience Park (www.colobio.com) and Rose Biomedical (www.rosebiomed.com).
- UCDHSC ranks 20th in total National Institutes of Health (NIH) funding out of 125 academic medical schools and 2nd in pediatric NIH funding. (*National Institutes of Health, 2004*)

Bioscience Industry Cluster Definition

NAICS	NAICS Description	SIC	SIC Description
Pharmaceuticals & Biotechnology			
325411	Medicinal and Botanical Manufacturing	2833	Medicinals and botanicals
325412	Pharmaceutical Preparation Manufacturing	2834	Pharmaceutical preparations
325413	In-Vitro Diagnostic Substance Manufacturing	2835	Diagnostic substances
325414	Biological Product (except Diagnostic) Manufacturing	2836	Biological products except diagnostic
541710	R&D in physical, engineering & life sciences	8731-01	Biological research
541710	R&D in physical, engineering & life sciences	8731-9902	Medical research commercial
541710	R&D in physical, engineering & life sciences	8733-01	Noncommercial biological research organization
Medical Devices & Instruments			
333298	All Other Industrial Machinery Manufacturing	3559-9922	Pharmaceutical machinery
339111	Laboratory apparatus & furniture mfg	3821	Laboratory apparatus and furniture
334516	Analytical laboratory instrument mfg	3826	Analytical instruments
339112	Surgical & medical instrument mfg	3841	Surgical and medical instruments
339113	Surgical appliance & supplies mfg	3842	Orthopedics, prosthetics, and surgical appliances
339114	Dental Equipment and Supplies Manufacturing	3843	Dental equipment and supplies
334517	Irradiation apparatus mfg	3844	X-ray apparatus and tubes
334510	Electromedical apparatus mfg	3845	Electromedical equipment

Bioscience Industry Cluster Relationships



For additional information, contact us:



Metro Denver
 Economic Development Corporation

1445 Market Street
 Denver, CO 80202-1790
 303.620.8092
 e-mail: info@metrodenveredc.org
www.metrodenveredc.org