



## ***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 almost 12,100 workers in nearly 400 companies, the seven-county Metro Denver\* area has a significant foundation on which to build and expand the 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 \$4.3-billion transformation into one 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.

Fitzsimons is anchored by the 227-acre health sciences campus of the University of Colorado at Denver and Health Sciences Center (UCDHSC, opening in 2008), the University of Colorado Hospital (UCH), the Children's Hospital (opening in 2008) 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 grow and prosper. 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 Fitzsimons can be found at [www.colobio.com](http://www.colobio.com).

The bioscience industry cluster is a diverse cluster that includes two sub-sectors: 1) pharmaceuticals and biotechnology; and 2) medical devices 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 healthcare industry.

## Pharmaceuticals and Biotechnology

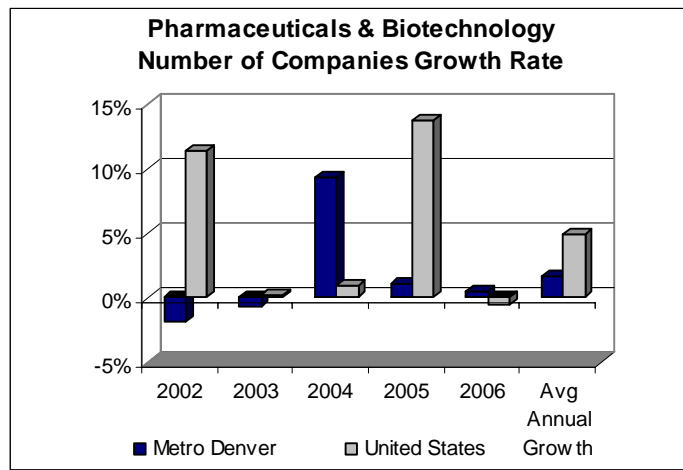
Pharmaceutical companies manufacture, research, and develop pharmaceutical drugs, whereas biotechnology companies utilize cellular and molecular biology and medicinal chemistry to develop and commercialize therapeutic medicines. The pharmaceuticals and biotechnology sub-sector is defined by five six-digit 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 2006.** With direct employment in pharmaceuticals and biotechnology of over 4,700 workers, Metro Denver also ranks 17th in absolute employment compared to the 50 largest metro areas. About 79% of Colorado's pharmaceuticals and biotechnology industry is located in Metro Denver.

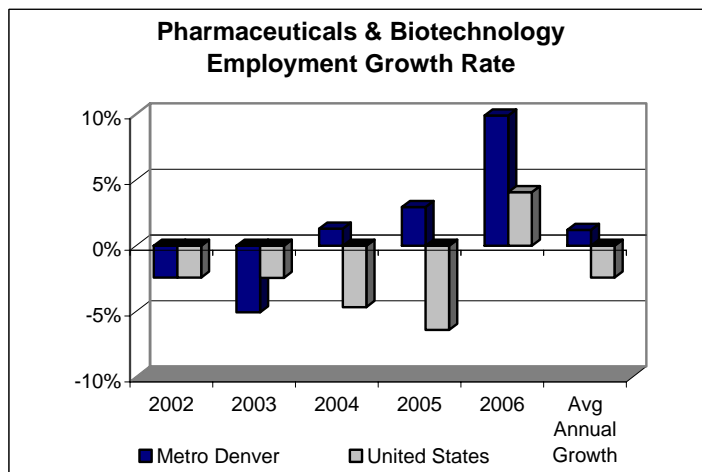
	Metro Denver	U.S.
Direct Employment 2006	4,740	444,710
Total Direct Employment Growth 2001-2006	6.2%	-11.6%
Avg. Annual Direct Employment Growth 2001-2006	1.2%	-2.4%
Number of Direct Industry Cluster Companies 2006	180	13,210
Direct Employment Concentration	0.4%	0.4%

### Pharmaceuticals and Biotechnology Companies

- There were 177 pharmaceutical and biotechnology companies located in Metro Denver in 2006.
- The number of pharmaceutical and biotechnology companies has grown 7.9% from 2001 to 2006 compared to 27.5% growth nationally.
- About 67% of the pharmaceuticals and biotechnology companies employ less than 10 people while about 3.4% of the companies employ 250 or more employees.
- The majority of companies in the pharmaceuticals and biotechnology sector are involved in pharmaceutical preparations and noncommercial biological research.



### 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.
- After decreasing in 2002 and 2003, employment increased in 2004 through 2006 with direct employment totalling 4,744 people in Metro Denver in 2006.
- Pharmaceuticals and biotechnology employment increased 6.2% from 2001 to 2006 compared to an 11.6% decrease nationally.

## Pharmaceuticals and Biotechnology Wages

The total payroll in the pharmaceuticals and biotechnology industry sector in Metro Denver reached an estimated \$350 million in 2005. The 2005 average annual salary for a pharmaceuticals and biotechnology worker was \$81,000 in Metro Denver compared to the national average of \$87,300.

### Metro Denver Occupational Salaries, 2005\*\*

Medical and Clinical Laboratory Technicians	\$34,210
Medical and Clinical Laboratory Technologists	\$48,110
Biomedical Engineers	\$54,670
Biochemists and Biophysicists	\$63,910

\*\*Mean annual salary data is for the ten-county Denver-Aurora Metropolitan Statistical Area (MSA), which does not include Boulder County.

Source: U.S. Bureau of Labor Statistics, Metropolitan Area Occupational Employment and Wage Estimates, May 2005, [www.bls.gov](http://www.bls.gov).

### Major Pharmaceutical and Biotechnology Companies

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

## Medical Devices and Instruments

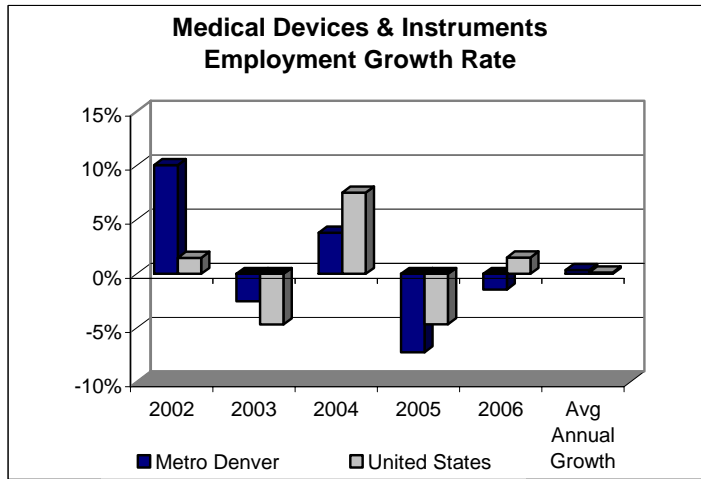
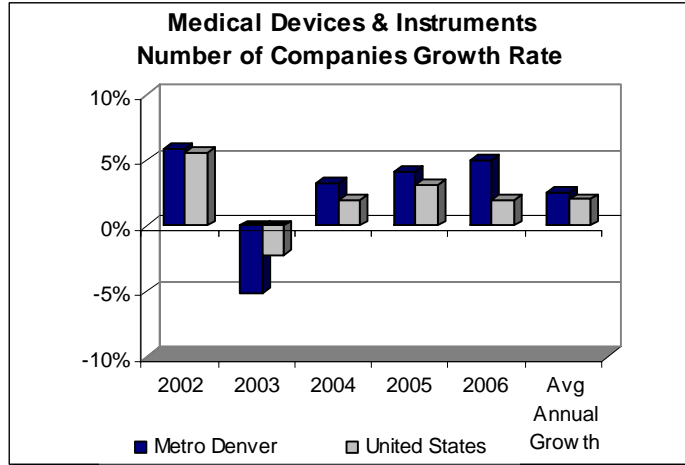
The medical device and instruments industry includes the engineering, research, design, and manufacturing of medical equipment used in the healthcare industry. The medical device and instruments sub-sector is defined by eight different six-digit NAICS codes.

***Metro Denver ranks 11th out of the 50 largest metro areas in medical device and instruments employment concentration in 2006.*** With direct employment in medical device and instruments of over 7,300 workers, Metro Denver ranks 11th in absolute employment compared to the 50 largest metro areas. About 78% of Colorado's medical device and instruments industry is located in Metro Denver.

	Metro Denver	U.S.
Direct Employment 2006	7,340	411,300
Total Direct Employment Growth 2001-2006	1.8%	0.6%
Avg. Annual Direct Employment Growth 2001-2006	0.3%	0.1%
Number of Direct Industry Cluster Companies 2006	210	12,210
Direct Employment Concentration	0.6%	0.3%

### Medical Device and Instruments Companies

- There were 210 medical device and instruments companies located in the seven-county Metro Denver area in 2006.
- The number of medical device and instruments companies has increased 13.5% from 2001 to 2006 compared to 10.6% growth nationally.
- About 63% of the medical device and instruments companies employ less than 10 people while 2.9% of the companies employ 250 or more employees.
- The majority of companies in the medical device and instruments sector manufacture surgical appliances and supplies, or surgical and medical instruments.



### Medical Device and Instruments Employment

- Medical device and instrument companies employ about 0.6% of Metro Denver's total employment base, compared to the 0.3% concentration nationally.
- The medical device and instruments industry sector has fluctuated between growth and decline in employment resulting in a slight five year growth and direct employment of 7,342 people in Metro Denver in 2006.
- Medical device and instruments employment has increased 1.8% between 2001 and 2006

compared to 0.6% growth nationally, representing average annual growth rates of 0.3% and 0.1%, respectively.

- Medical device and instruments employment is concentrated in Jefferson (41%), Boulder (26%), and Arapahoe (20%) counties.

### Medical Device and Instruments Wages

The total payroll in the medical device and instruments industry sector in Metro Denver reached an estimated \$416 million in 2005. The 2005 average annual salary for a medical device and instruments worker was \$55,800 in Metro Denver compared to the national average of \$51,500.

### Major Medical Device and Instruments Companies

- AlloSource  
[www.allosource.org](http://www.allosource.org)
- Baxa Corporation  
[www.baxa.com](http://www.baxa.com)
- Cobe Cardiovascular, Inc.  
[www.cobecv.com](http://www.cobecv.com)
- Gambro BCT  
[www.gambrobct.com](http://www.gambrobct.com)
- Medtronic, Inc.  
[www.medtronic.com](http://www.medtronic.com)
- Valleylab  
[www.valleylab.com](http://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, 2006*)
- Metro Denver offers eleven higher education institutions with Biosciences programs. 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 healthcare 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*)
- Colorado has the lowest obesity rate among the 50 states. (*Trust for America's Health, 2006*)

**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.
- The Fitzsimons BioBusiness Incubator has been established to help early-stage bioscience companies move from concept to commercial venture.

**3. Favorable tax policies.**

- Colorado has the 12th most business-friendly tax climate in the nation according to the State Business Tax Climate Index. Colorado ranks sixth in the corporate tax index, a sub-index of the overall tax climate index. Colorado has one of the lowest corporate income tax rates in the nation with a rate of 4.63%. (*The Tax Foundation, 2006*)
- 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*)

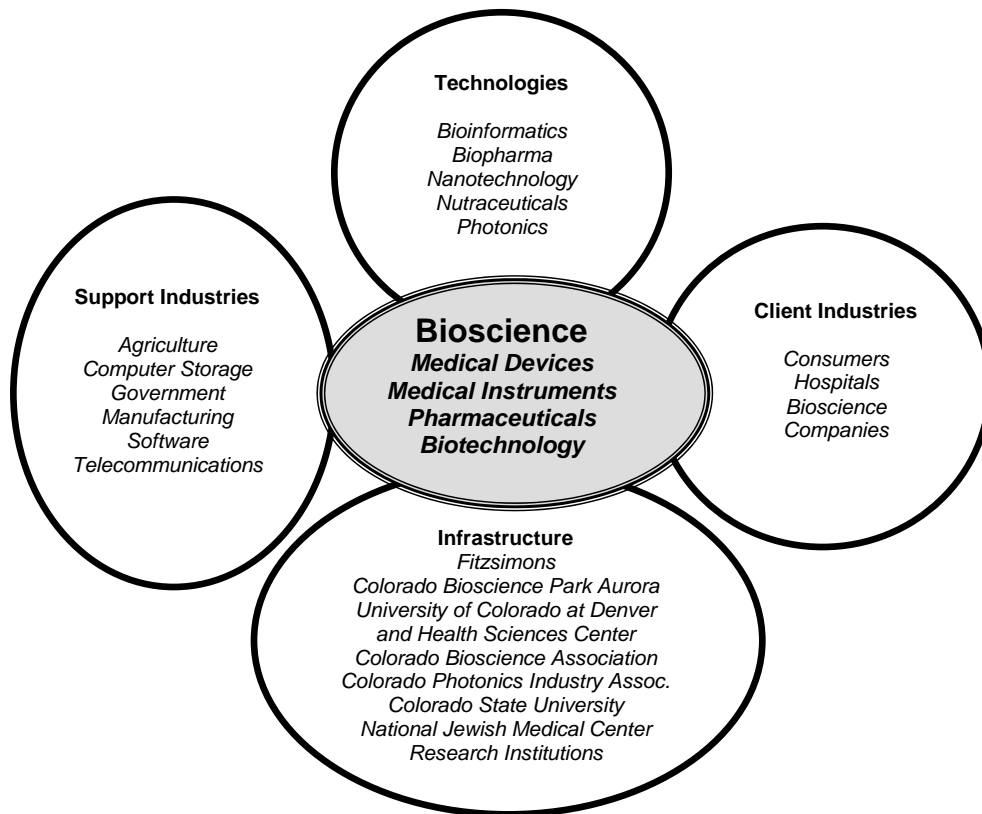
**4. Access to financial resources to fund research and development.**

- 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/](http://www.state.co.us/oed/sbdc/)), Certified Capital Companies ([www.state.co.us/oed/finance/capco.cfm](http://www.state.co.us/oed/finance/capco.cfm)) and the Colorado Venture Capital Authority ([www.state.co.us/oed/finance/VCA.shtml](http://www.state.co.us/oed/finance/VCA.shtml)).
- Metro Denver offers an incubator that serves bioscience firms at the Fitzsimons Bioscience Park ([www.colobio.com](http://www.colobio.com)).
- UCDHSC ranks 20th in total National Institutes of Health (NIH) funding out of 125 academic medical schools and second in pediatric NIH funding. (*National Institutes of Health, 2004*)

## ***Bioscience Industry Cluster Definition***

<b>NAICS</b>	<b>NAICS Description</b>	<b>SIC</b>	<b>SIC Description</b>
<b>Pharmaceuticals &amp; Biotechnology</b>			
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
<b>Medical Devices &amp; Instruments</b>			
333298	All Other Industrial Machinery Manufacturing	3559-9922	Pharmaceutical machinery
334510	Electromedical apparatus mfg	3845	Electromedical equipment
334516	Analytical laboratory instrument mfg	3826	Analytical instruments
334517	Irradiation apparatus mfg	3844	X-ray apparatus and tubes
339111	Laboratory apparatus & furniture mfg	3821	Laboratory apparatus and furniture
339112	Surgical & medical instrument mfg	3841	Surgical and medical instruments
			Orthopedics, prosthetics, and surgical appliances
339113	Surgical appliance & supplies mfg	3842	appliance
339114	Dental Equipment and Supplies Manufacturing	3843	Dental equipment and supplies

## ***Bioscience Industry Cluster Relationships***



For additional information, contact us:



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