

State of the Bioscience Industry in Colorado

Denise Brown
Executive Director
Colorado BioScience Association

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What is the Bioscience Industry in Colorado?

- 400 Companies
 - 210 Medical Device
 - 30 Ag Biotechnology and Biofuels
 - 170 Bio/Pharmaceutical
- 16,000 employees total
- Indirectly supported jobs: 20,500
- Average wage of over \$70,000
- Colorado ranks in the second tier of clusters nationally

Where Does the Bioscience Cluster Stand in the Denver Metro Area?

<u>Cluster</u>	<u>Employment</u>
Aerospace	54,000
Aviation	14,200
Bioscience	12,200
Energy	22,900
Financial Services	90,000
Information Technology Software	44,000
Beverage Production	5,500
Broadcasting and Telecom	43,000
Information Technology - Hardware	9,700

Source: Metro Denver Economic Development Corporation

Bioscience Sub - Sectors

- Pharmaceuticals and Biotechnology
 - Pharmaceutical companies research, manufacture and develop pharmaceutical drugs
 - Biotechnology companies utilize cellular and molecular biology along with medical chemistry to develop and commercialize therapeutic medicines
- Medical Devices and Instruments
 - Includes engineering, research, design and manufacture of medical equipment used in the healthcare industry

Pharmaceuticals and Biotechnology

- In 2006 there were 177 companies in this sector
- Direct employment – 4,800
- Employment growth 2001 thru 2006 - 6.2%
(higher than national average)
- 67% employ less than 10 people; 3% employ more than 250 people
- Significant concentration in Boulder and Broomfield

Medical Devices and Instruments

- In 2006 there were 210 companies in this cluster
- Direct employment – 7,400
- Employment growth 2001 thru 2006 - 1.8%
(higher than national average)
- Device companies are concentrated in Jefferson, Boulder, and Arapahoe counties
- 63% employ less than 10 people; 3% employ more than 250 people

Where are Colorado's Bioscience Companies?

- Primarily along the front range with concentrations in:
 - Boulder, Jefferson, Broomfield Counties
 - Denver, Aurora
 - Fort Collins
 - Colorado Springs (emerging)
- Generally proximate to research institutions and workforce
- Boulder has the largest concentration of drugs and pharmaceutical employment among medium sized metro areas
- Denver-Aurora is an “emerging” region in drugs and pharmaceutical

Where Do New Companies Come From?

- 75 % Home Grown
 - Spin-outs from existing companies
 - Spin-outs from research institutions
 - Independent inventors
- 25% In-Migration
 - Few with meaningful incentives
 - Research relationships
 - CEO preference for lifestyle
 - Partners located in Colorado
 - Mergers and acquisitions
- Total of between 20 – 25 new companies/year

Characteristics of the Bioscience Industry

- The “business” of science and engineering
- Long lead time to product
- Highly regulated environment
- High Cost/High Risk/High Reward
- International in scope
- Growing because of demographics, new discoveries, greater wealth in other parts of the world, investor focus
- Located in areas with strong research institutions and highly innovative cultures
- Disciplines are converging to create new products (nano, photonics, bio, IT, engineering, materials science, etc.)
- Commitment to mission based on more than pure economics

Strengths of the Industry in Colorado

- Strong science pipeline
- Long standing tradition in devices
- Availability of capital from some strong local investors
- Improved technology transfer at research institutions
- Approaching critical mass
- Some large industry anchors
(Amgen, Baxa, Roche, Gambro, Medtronic, ValleyLab)
- Emerging serial entrepreneur community
- Depth and specialization of service provider sectors
(construction, real estate, legal, accounting, marketing, etc.)
- Lifestyle
- A maturing industry – not just start-ups

Growing the Bioscience Industry in Colorado - Challenges

Infrastructure/Resources

- Workforce
- Small pool of successful serial entrepreneurs
- Not yet at “critical mass”
- Merger and Acquisition activity (consolidation)
- Perception that Colorado isn't a big player
- Colorado-based contract manufacturers have little in-state business

Growing the Bioscience Industry in Colorado – Challenges (Continued)

Financial

- Hard to get investor interest from out of state
- Gaps in early stage funding
- Few incentives – companies don't fit economic development investment profile
- Merger and Acquisition activity (consolidation)

Growing the Bioscience Industry in Colorado – Challenges (Continued)

Educational

- Workforce
- Researchers have few incentives to participate in private company activity
- Lack of investment in higher education
- Need to form stronger networks with commercial sector

Strategies to Support the Growth of the Industry

- “Grow our Own”
 - Improve current business environment (stay competitive with other states on tax structure)
 - Create targeted incentives for job creation and early stage investments
 - Continue to improve commercialization of research institution technologies

Strategies to Support the Growth of the Industry

- “Grow our Own” (continued)
 - Support early stage companies
 - Develop strategies to fill investment “gaps”
 - Increase entrepreneurial support, including incubators
 - Sustain and grow cadre of serial entrepreneurs
 - Create program for the sale of net operating losses
- Initiate Targeted Legislation to Fill “Gaps” and Provide Incentives

Jobs in Bioscience

- Research and Development – Scientists and Engineers, Lab Technicians
- Manufacturing – Engineers, Manufacturing Technicians
- Regulatory Professionals
- Management, Finance, Accounting, Business Development, Marketing, Public and Investor Relations
- IT Professionals and Support
- Clinical Trials Managers
- Quality Control Personnel
- Legal (corporate, IP, licensing, financing)
- Support staff at all levels in all areas

Where are the Jobs

- Device – mostly small manufacturers and contract manufacturers (less than 300 employees)
- Bio/Pharmaceutical R&D Companies – Mostly small (less than 100 employees) companies with no approved products
- It can be difficult to get information about non-public companies and hard to get into the door
- Exceptions – Some large manufacturers, such as Amgen, Roche, Gambro, Medtronic, Valley Lab

What is the Colorado Bioscience Association?

The Colorado BioScience Association is the bioscience industry association for Colorado. CBSA works to provide leadership in the development of statewide and regional plans for the growth of bioscience in Colorado, to facilitate partnerships among member institutions and companies, to further the development of a premier bioscience cluster in Colorado and to serve as an effective and persuasive voice for CBSA constituents.

The Colorado BioScience Association works to promote the needs of Colorado's bioscience companies by proposing initiatives and providing information to national, state, and local elected and appointed officials. Policy direction for government relations and public affairs issues is established by the Board of Directors with the advice and recommendation of CBSA's Committee on Government Relations.