



Promoting the Biopharmaceutical Industry

COLORADO POLICIES AND PROGRAMS

HIGHLIGHTS

- *Colorado is committed to growing a robust cluster of bioscience companies*
- *In 2008, Colorado created a 5-year, \$26.5 million Bioscience and Life Science Fund to provide support for proof-of-concept projects and translational research*
- *Colorado has made significant investments in building its bioscience research infrastructure including Anschutz Medical Campus and Colorado Science + Technology Park at Fitzsimons which is expected to reach \$5 billion at full build-out*
- *The University of Colorado launches approximately 10 new bioscience companies annually and Colorado State University created 13 bioscience companies around CSU-developed technologies between 2002 and 2007*

in the sector and are significantly greater than those in the U.S. overall—\$98,478 in 2006, or about \$10,000 more than their counterparts nationally.

Colorado's Approach to Growing the Biopharmaceutical Industry

Colorado committed to making the biosciences, which the state defines as including agricultural feedstock and chemicals, drugs and pharmaceuticals, medical devices and research and testing, a key driver of the state's economy in the late 1990s when the state decided to create a new state-of-the-art medical campus on the site of the former Fitzsimons Army Medical Center, which closed in 1999. In addition to the campus, which would house the University of Colorado Health Science Center and multiple hospitals, part of the Fitzsimons site was reserved for the development of a bioscience research park.

In 2003, the public and private sectors cooperated in developing *Colorado's Place in the Sun: An Action Plan to Grow Colorado's Bioscience Cluster*.³ The Plan proposed a series of strategies and actions designed to distinguish Colorado as a preeminent life science health care center and home to a vibrant cluster of bioscience companies. In 2008 an updated strategy, *Colorado Bioscience Roadmap 2008* was prepared that identified three bioscience areas for development, one of which is biopharmaceuticals.

Since the strategy was adopted, state government and Colorado's research institutions have made significant investments in facilities and infrastructure to support the bioscience research enterprise.

Colorado's Biopharmaceutical Industry

Colorado is home to a mid-sized biopharmaceutical industry employing nearly 14,000 in 2006.¹ Including its direct, indirect, and induced effects on the state economy, the sector contributes \$9.7 billion in total economic output.² Colorado biopharmaceutical firms have grown the sector, adding employees at a compound annual growth rate of 2.6 percent per year since 1996, just below the national average growth rate. Average industry wages in Colorado reflect a focus on value-adding R&D activities

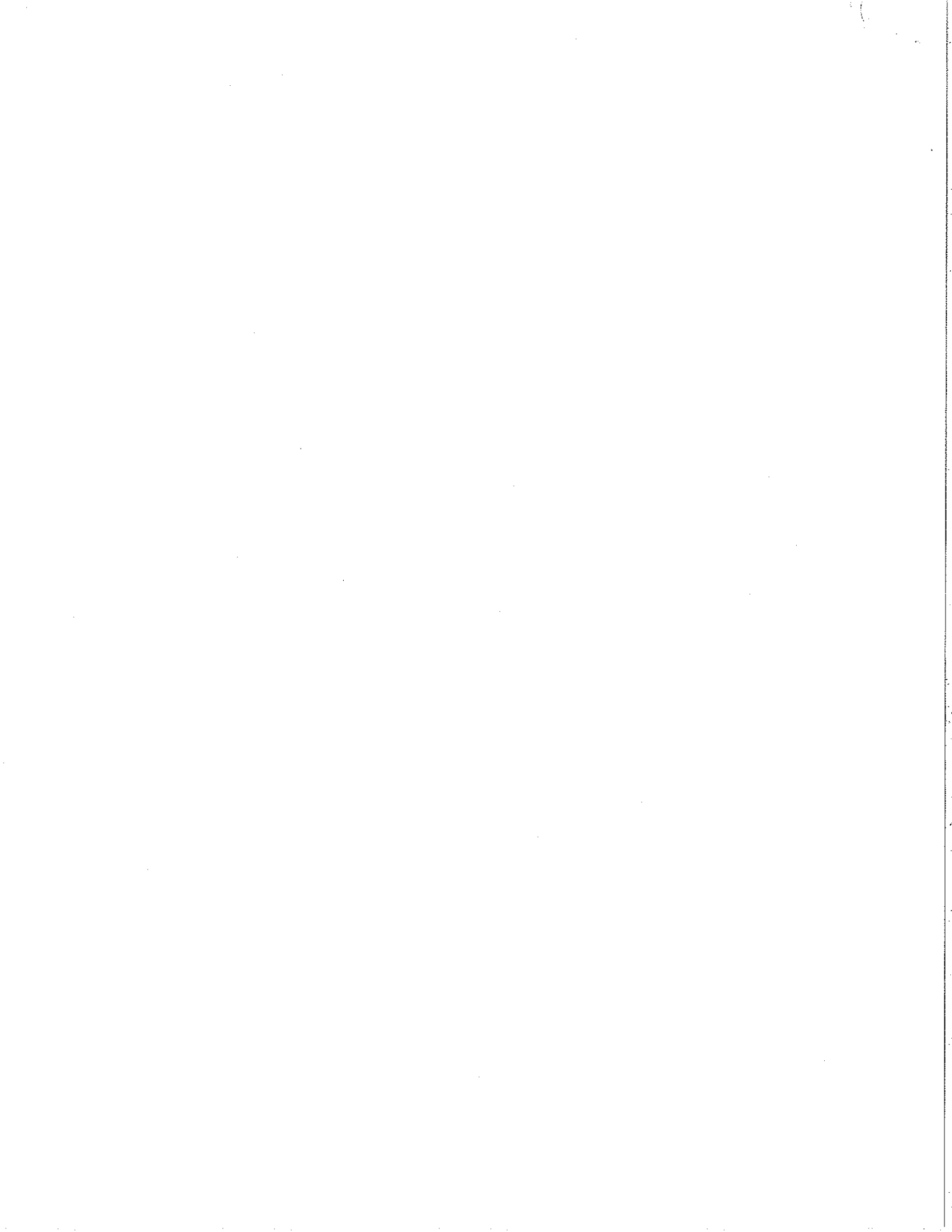
Biopharmaceutical Sector Performance Measures	CO	US
Direct Employment, 2006	13,647	686,442
Direct Employment Growth (CAGR), 1996-2006	2.6%	3.1%
Average Annual Wages (Direct Employment), 2006	\$98,478	\$88,929
Total Supported Employment (incl. Direct), 2006	57,191	3,233,920
Total Economic Output, 2006 (\$ billions)	\$9.7	\$294.6
Direct Output per Direct Employee, 2006	\$235,504	\$128,925
Active Clinical Trials, 2008	1,823	21,795

Source: Archstone Consulting, *The Biopharmaceutical Sector's Impact on the U.S. Economy*, prepared for PhRMA, 2009.

CAGR = Compound Annual Growth Rate

Vision: Colorado is the life science center for the Rocky Mountain Region, delivering solutions for regional, national, and global health needs through its leadership in research, education, and clinical medicine. Colorado has a robust cluster of bioscience and technology companies and a highly talented workforce that are developing innovative products to address health care, environmental, clean energy, agricultural, veterinary, and national security needs.

Colorado Bioscience Roadmap 2008



Recent and proposed investments to support academic bioscience facilities and initiatives total approximately \$700 million and include the following:

- Colorado Initiative in Molecular Biology, \$200 million (described on the next page)
- Systems Bio Building at University of Colorado – Boulder (CU-Boulder), \$113 million (groundbreaking expected in 2009)
- University of Colorado Denver Biomedical Initiatives, \$275 million (proposed)
- Colorado State University's (CSU) Rocky Mountain Regional Biocontainment Lab, \$30 million (completed)
- CSU's Centers for Disease Control and Prevention Division of Vector-Borne Infectious Diseases Lab, \$80 million (completed).⁴

Starting in 2006, Colorado created several programs to facilitate technology transfer and commercialization by making early-stage capital available to researchers and start-up firms. They include:

- **The Bioscience Discovery Evaluation Grant Program**, which provides proof of concept grants of up to \$150,000 to technology transfer offices to enhance the commercial potential of bioscience research projects was enacted in 2006 (House Bill [HB] 06-1360).
- **Bioscience and Life Science Fund** (HB 08-1001) that provides grants to Colorado start-up companies and research institutions seeking to commercialize new biotechnology drugs, biofuels, medical devices, and nanotechnology. The grants, capped at \$15,000 for research institutions and \$250,000 for companies, can be used to support proof-of-concept projects, translational research, and incubators and to provide financing for start-up companies formed to commercialize university-developed technologies. The program was funded at \$26.5 million for 5 years in 2008.
- **The Colorado Innovation Investment Tax Credit** provides a tax credit to individuals who invest in a Colorado-based, startup technology company. The minimum that can be invested to qualify for the credit is \$25,000 and the company must be less than 5 years old. The credit is for 15 percent of the amount invested for each of 2 years. The legislation, passed in 2009, created the program as a 1-year pilot (HB 09-1105).

Major State Initiatives to Attract and Grow the Biopharmaceutical Industry

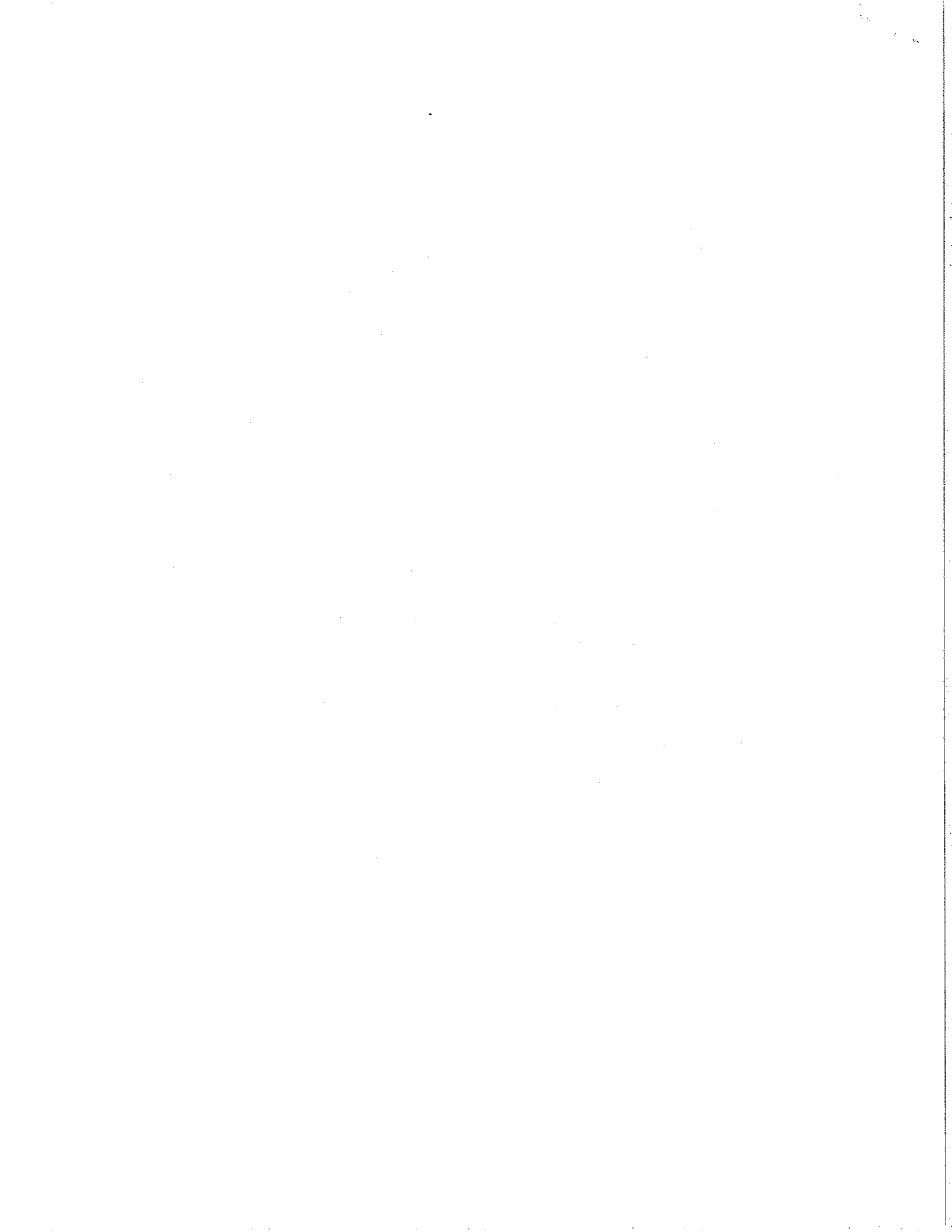
Anschutz Medical Campus and Colorado Science + Technology Park at Fitzsimons

The relocation of the University of Colorado Health Sciences Center, the University of Colorado Hospital, and The Children's Hospital from downtown Denver to Aurora has been underway since 1999. The completion of the first major interdisciplinary research building occurred in 2004; a second was completed in 2008. Total capital investment in the site is over \$2 billion. In November 2006, the University of Colorado portion of the campus was renamed Anschutz Medical Campus, in recognition of a series of gifts totaling more than \$91 million by The Anschutz Foundation. The Denver Department of Veterans Affairs Hospital will also relocate to the Fitzsimons site and will be completed in 2012. The campus, with an estimated total investment of \$5 billion upon completion, currently has 16,000 employees and is expected to reach 23,000 employees in 10 years and 43,000 at full build-out in 20 to 30 years.⁵

"The great R&D work being done in Boulder, Fort Collins and at the Anschutz Medical Campus at Fitzsimons is making Colorado a regional bioscience hub. My administration has made the biosciences one of the focal points of our overall economic development strategy, and by elevating the stature of this crucial industry of the future, we are competing on a national and international level."

Governor Bill Ritter, Jr.
Office of the Governor
Press Release, June 17, 2008

Located adjacent to the Medical Campus is the Colorado Science +Technology Park at Fitzsimons, a research park that is being developed by Forest City Science and Technology Group, in partnership with the Fitzsimons Redevelopment Authority. There are currently two buildings in the Park: Bioscience Park Center and Bioscience East, both of which house early-stage life science companies. Construction of the park's next 65,000-square-foot multi-tenant office and lab building began in September of 2008.



**Colorado Initiative in Molecular Biotechnology (CIMB)
at the University of Colorado at Boulder (CU-Boulder)**

CIMB is an effort of the faculty and leadership of CU-Boulder to build a community of world-class physical, computational, and biological scientists and engineers to solve complex biomedical problems, catalyze the bioscience industry in Colorado, and provide an education for students in the basic biomedical sciences. A capital campaign is underway to raise \$200 million to support the initiative. Planning is also underway for a new Systems Biotechnology Building to bring together more than 60 faculty and 600 researchers in three primary units: the Biochemistry Division, the Chemical and Biological Engineering Department, and the CIMB.

CSU Ventures

Colorado State University created CSU Ventures, Inc., in 2007 to better serve businesses interested in commercializing university-developed technology. CSU Ventures is a nonprofit corporation that houses CSU's Supercluster business enterprises. CSU's Superclusters, a new business development model for public-private partnerships and technology transfer, are organized around a major global challenge, uniting an academic arm (an interdisciplinary alliance of researchers, economists, and business experts) and an enterprise arm (a chief scientific officer, chief operating officer, and technology transfer specialists reporting through CSU Ventures). The overarching goal is to move technologies more rapidly into the marketplace. To date, CSU has created three Supercluster business units, two of which focus on biopharmaceuticals: MicroR_x,™ focused on infectious diseases; and NeoTrex,™ focused on cancer diagnosis and treatment.

**CSU Awarded \$2.25 Million in State Funds to Launch a
Colorado Center for Drug Discovery in 2009**

"The creation of this center will arm researchers from across the state with resources they need to develop new drugs to treat unmet medical needs," said Terry Opgenorth, co-director of the center. "It also will create jobs as those discoveries move forward in the development process. Full development through Federal Drug Agency approval and ultimate commercialization will require partnering with a biopharma company or creation of a new company around the technology. In either case, the bioscience economy in Colorado benefits."

CSU Press Release
09/16/2009

"My company's success is a testament to the collaborative effort between the University of Colorado, the local investment community, and the strong local scientific talent. Colorado has the highest national average of people affected by Multiple Sclerosis (MS). Our lead product candidate is targeting MS and will enter the clinic this year. This product has the potential to improve the quality of life for many of the 70,000 Colorado residents that suffer from this debilitating disease."

CEO of a Colorado Biopharmaceutical Firm

**Colorado Institute for Drug, Device, and Diagnostic
Development**

The Colorado Institute for Drug, Device and Diagnostic Development is a nonprofit organization launched in late 2009, with the mission of accelerating the commercialization of biomedical technologies. Partners in the Institute include:

- The University of Colorado - Boulder
- Colorado State University
- Colorado Bioscience Association
- Fitzsimmons
- University of Colorado Denver

The Institute will have a small, high-level scientific and executive team which will work with university technology transfer offices and bioscience entrepreneurs to identify commercially promising technologies and develop them to successfully pass the various stages of preclinical development.

¹ The biopharmaceutical sector is defined as including pharmaceutical and medicine manufacturing and scientific research and development services. The bioscience sector is broader and includes medical devices and agricultural feedstocks and chemicals in addition to biopharmaceuticals. Some states use the term life sciences or biomedical sciences, which often include hospitals and health care institutions as well.

² Archstone Consulting, *The Biopharmaceutical Sector's Impact on the U.S. Economy*, prepared for PhRMA, 2009.

³ Colorado Bioscience Roadmap 2008, prepared by Battelle for the Colorado BioScience Association

⁴ Colorado Bioscience Roadmap 2008, prepared by Battelle for the Colorado BioScience Association

⁵ <http://www.ucdenver.edu/ABOUT/DENVER/Pages/AnschutzMedicalCampus.aspx>

PhRMA 2009

