ACCELERATE COLORADO

D.C. 2010

Bioscience Background

Colorado Institute for Drug, Device, and Diagnostic Development (CID4) Background

- CID4 is a private not-for-profit entity which provides management expertise and funding to efficiently transform emerging life science technologies into commercial successes. CID4 does this by identifying and actively managing promising life science technology investments. CID4's mission is to:
  - Accelerate the commercialization of life science discoveries made within the state's research institutions and private start-up companies;
  - Insure greater success in creating and retaining Colorado life science companies;
  - Create the desirable jobs associated with the life sciences industry.
- Over the first five years of operation, 12 new technologies will be steered through the early stages of development by CID4 resulting in new local companies, financeable by the private sector. CID4 will help Colorado better develop and protect a dynamic bioscience industry by accelerating the formation and growth of promising life science technologies.
- CID4 will be receiving $3.75 million in state grants this spring as part of a total $10.5 million in state lab grants to build biotechnology infrastructure in Colorado. The $10.5 million is the largest disbursement of money from the $26.5 million biotech incentive pool the state legislature created in 2008.
- CID4 received $300,000 in federal funding in FY 2010.

National Institutes of Health Background

- In 2009, Colorado received a total of $437 million in funding from the National Institutes for Health (NIH). That includes $375 million from regular appropriations and an additional $62 million from the American Recovery and Reinvestment Act funding.
- The University of Colorado Denver's Anschutz Medical Campus received 525 sponsored research awards in 2009 for $165,400,485. This amounts to 45% of the campus's sponsored research awards, making NIH its highest grant funding agency.
- For every $1 million invested in NIH, more than 30 jobs are created/sustained, and research in areas involving cancer, neurological diseases, diabetes, diseases in children, and other important diseases is furthered. Funding NIH also means that translational research (taking discoveries made in the laboratory to the patient) is advanced.

Patent Reform Background

- A strong patent system encourages collaborations that result in the research and development of innovative products and technologies. Patents are fundamental in spurring new and translatable research in universities and research organizations. Because patents require full disclosure of inventions, novel concepts, products and technologies are put into the public domain that can then be used as the subject of future research in universities and research

organizations. This resulting research can then be developed into new and commercially useful products and technologies through the transfer (licensing) of patent rights. Weak patent rights would stifle further research, development, and commercialization of inventions.

- Patents are key to biotechnology investment and product development. This is especially true in today's difficult economic climate. Because the majority of biotechnology companies have no products on the market, they leverage their patent assets to generate funding for their research and development activities. Despite the uncertainty of biotech innovation and the decades of capital-intensive investment and research required, the promise of biotechnology coupled with the hope of a return on the investment that patents provide attracts billions of dollars of investments every year. Without strong and predictable protections for biotech inventions, investors will shy away from investing in biotechnology, diminishing the chances that solutions will be developed to meet the most pressing medical, agricultural, industrial, and environmental challenges facing our nation and the world.

Intellectual Property Background

- Intellectual property rights have eroded around the world, especially when it comes to the pharmaceutical industry. The very idea of patent protection is under attack. This, despite the fact that patents provide the incentive for inventing medicines Americans take each day to cure disease and save lives.
- Weakening intellectual property rights will cripple innovation, and stifle an industry that provides America with more than 450,000 direct jobs. But it will not only hurt America. It will damage prosperity, health, and progress everywhere on every continent and in every country where creative solutions matter. The key to better health in the developing world is not to destroy patents – but to create partnerships aimed at improving the public welfare.
- Contrary to patents raising the costs of prescription drugs, increased use of patent-protected medicines can actually drive health care costs down. A recent Columbia University study found replacing an older medicine with a new one did increase drug spending by $18 – but reduced health costs by $111.

Bioscience Industry Background

- A strong federal investment in medical research is critical for the health and prosperity of Colorado's bioscience industry. Increased support for medical research from the Administration and Congress will impact the bioscience industry by providing more dollars for research in technologies that may one day not only provide cures for disease, but also help create profitable products and companies that employ highly skilled workers in Colorado.
- Colorado has approximately 17,150 private-sector bioscience workers in nearly 650 companies made-up primarily of medical device and instrument, as well as pharmaceutical and biotechnology firms.
- Colorado ranks seventh in the nation for its 2009 concentration of medical device and instrument employment (11,080 jobs). The 2008 average salary for a worker in this sub-category was $63,080 ($69,100 nationwide).
- Colorado ranks 21st in the nation for its 2009 concentration of pharmaceutical and biotechnology employment (6,070 jobs). The 2008 average salary for a worker in this sub-category was $88,820 ($95,760 nationwide).

- The state is home to renowned research institutions and universities including such facilities as the University of Colorado Denver's Anschutz Medical Campus, National Jewish Health, The Children's Hospital, the Eleanor Roosevelt Institute at the University of Denver, Colorado State University's College of Veterinary Medicine and Biomedical Sciences, and the U.S. Centers for Disease Control and Prevention's Division of Vector-Borne Infectious Diseases.
- A major contributor to Colorado's bioscience industry is the Anschutz Medical Campus and Fitzsimons Life Science District located at I-225 and Colfax Avenue in Aurora. The site, which currently employees 15,900, is the home of the University of Colorado Denver health sciences operations, the University of Colorado Hospital, The Children's Hospital, the new Veterans Administration Hospital, and several other centers for health care, biomedical research and workforce development. This project contributed $3.5 billion dollars to the state's economy in 2008 with $1.4 billion generated in personal income. By 2013, the site will employ 21,041 directly, contribute $4.5 billion annually to Colorado's economy and generate $1.8 billion in personal income. At build-out, the Anschutz/Fitzsimons site will be a $5.2 billion investment, consist of approximately 18.5 million square feet and employ 44,569 people (direct jobs, no multiplier).
- Technology transfer is another contributor to the private-sector of the bioscience industry. The University of Colorado Technology Transfer Office is ranked among the top 20 universities for creating startup companies by the Association of University Technology Managers. Of the 160 U.S. universities, CU tied for tenth place for the number of startup companies created in fiscal year 2008. In the past five years, 51 companies have been formed based on CU intellectual property – of these 51 companies, 44 are operational as either stand alone or subsidiary/merged companies – 42 having operations in Colorado. In the past four years, Colorado State University Research Foundation had 134 technologies licensed to external companies.
- Colorado Springs is an emerging leader in the bioscience industry with firms specializing in medical devices, pharmaceutical manufacturing, and clinical research. Two major research hospitals are located in Colorado Springs: Centura Health Penrose-St.Francis Health Services and Memorial Health System. Penrose-St. Francis was named one of "America's 50 Best Hospitals" for 2008, 2009 and 2010 by HealthGrades, the only recipient in Colorado and the top one percent in the nation. Memorial Health System is a well recognized leader in cardiac care including being ranked "One of the Top 100 Cardiovascular Hospitals," by Thomson Top 100 Hospitals in 2007.
- Colorado State University has almost completed its new 72,000-square-foot, $53 million Research Innovation Center, an addition to Colorado State's Infectious Disease Research Center. The center will provide a hub for university scientists and students to partner with businesses to develop new products to treat and diagnose infectious diseases. Also at the site is the 38,000-square-foot Rocky Mountain Regional Biocontainment Laboratory, completed in October 2007. Research activities began in March 2008. The building was constructed with a $30 million grant from NIH's National Institute of Allergies and Infectious Disease.