



Bioscience and Health Care Background 2011

United States Patent and Trademark Office (USPTO) Background

- Of the 1.2 million pending patent applications in the United States, more than 700,000 of them have not even been given a preliminary evaluation. There is currently only one USPTO in the United States located in Alexandria, VA. This single office has a very difficult time recruiting, training and retaining the 6,000 plus employees needed for efficient patent review. It takes five years of training and oversight for a new patent examiner to meet proficiency and quality standards, but because of the recruiting and retention difficulties, about a third of all patent examiners have less than three years of experience. The establishment of regional offices will draw local scientists, innovators and patent attorneys, adding a heightened level of expertise to the patent examination process. *Source: U.S. Senator Michael Bennet's Office*
- Colorado's highly educated workforce and leadership in technological innovation make the state a logical home for a satellite USPTO. Further, the quality of life and low-cost of living would contribute to the office's ability to recruit and retain employees.
- From 2004 to 2009 more than 11,100 issued patents originated from Colorado innovators. *Source: Pfizer, Inc.*
- In 2009, 1,716 patents were granted to applicants based in Colorado. This does not include applications where Coloradoans were involved in developing the technology, but the application was filed from a separate corporate headquarters. *Source: Pfizer, Inc.*

Patent Reform Background

- A strong patent system is crucial for incentivizing the research and development of innovative products and technologies. New technologies can take decades and billions of dollars to develop, and if the rights to these technologies are not sufficiently protected, research and commercialization stalls. The United States' patent system has not been adequately updated in nearly 60 years, and as a result, we have lost ground to China and Europe. China, in particular, has plans to increase filings of patents to two million patents per year by 2015. In 2009, China had 600,000 patents filed. The United States filed approximately 480,000 during the same time period. *Source: "When Innovation, Too, Is Made in China," New York Times*
- Patents are especially important to the bioscience industry. Because the majority of biotechnology companies have no products on the market, they leverage their patent assets to generate funding for research and development.
- Without strong, predictable protections for biotech innovation, investors will shy away from investing in biotechnology, thus diminishing the chances of developing solutions to meet the most pressing medical, agricultural, industrial, and environmental challenges facing our nation and the world.

National Institutes of Health Background

- President Obama is seeking expanded budgets for the National Institutes of Health (NIH) and four other key agencies involved in biotechnology. All but one of agencies would see double-digit increases under the president's plan, which is expected to undergo substantial revisions over the next several months.
- NIH spending would see the smallest increase of about 2.4%, or \$745 million, from the last budget approved for the agency. In FY 2010, NIH received \$31.24 billion, while the 2012 proposals call for almost \$31.98 billion. Congress has yet to approve a budget for the current fiscal year, which ends September 30. *Source: Research!America*
- During 2010, Colorado received a total of \$307,646,620 from NIH to fund 867 projects statewide. This ranks Colorado 19th in grants from NIH in 2010 (we rank 22nd in population). Of the amount above dedicated to Colorado, \$69,751,230 was funded through the American Recovery and Reinvestment Act (ARRA). *Source: NIH Research Portfolio Online Reporting Tools (RePORT)*
- The University of Colorado Denver, which includes the Anschutz Medical Campus, received 662 sponsored research awards in 2010 for \$216,912,838. This amounts to 52% of the campus's sponsored research awards, making NIH its highest grant funding agency. *Source: University of Colorado Denver Sponsored Program and Other Restricted Fund Activity Annual Report 2009-2010*
- 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. *Source: University of Colorado Denver Anschutz Medical Campus*

Bioscience and Health Care 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.
- A major contributor to Colorado's bioscience industry is the Anschutz Medical Campus and Fitzsimons Life Science District redevelopment project, which currently employs 16,000 people on one square mile dedicated to excellence in patient care, education, and research. The master plan includes a \$5.2 billion investment, 18.5 million square feet of new construction and the employment of nearly 45,000 people at build-out. 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. *Source: Fitzsimons Redevelopment Authority*
- Colorado has approximately 16,490 private-sector bioscience workers in nearly 640 companies made-up primarily of medical device and instrument, as well as pharmaceutical and biotechnology firms. *Source: Metro Denver EDC Bioscience Colorado Industry Cluster Profile*
- Colorado 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; Colorado State University's College of Veterinary Medicine, Biomedical Sciences and Seed Laboratory; and the U.S. Centers for Disease Control and Prevention's National Center for Zoonotic, Vectorborne, and Enteric Diseases. Private bioscience companies are all across the state from Agrium Inc. in Loveland to Amgen in Boulder to Westone Laboratories in Colorado Springs, just to name a few.
- Technology transfer is another important aspect of the bioscience industry. The University of Colorado Technology Transfer Office is ranked among the top 10 universities for creating startup

companies by the Association of University Technology Managers. Of the 145 U.S. universities, CU tied for ninth place for the number of startup companies created in fiscal year 2008-09. In the past seven years, 69 companies have been formed based on CU intellectual property – of these, 57 are operational as either stand alone or subsidiary/merged companies – 52 having operations in Colorado. In the past four years CU has executed a total of 170 exclusive licenses and options to companies. *Source: University of Colorado Technology Transfer Office*

- The CSU Research Foundation (CSURF) and CSU Ventures (CSUV) have helped to launch 35 CSU startup companies. To date, these startups have raised approximately \$700 million in private equity/debt and received approximately \$100 million in federal funding. 24 of these 35 companies were formed since 2006, 21 of which are still active. All of these are headquartered in Colorado. In 2010, 6 startups were created at CSU, or approximately 2 startups per \$100M in university research expenditure, a ratio on par with top startup-creating universities, based on historical survey data from the Association of University Technology Managers. CSURF has also executed 170 license agreements with companies since 2006. *Source: Colorado State University Research Foundation Technology Transfer Office*
- Colorado State University recently completed its new 72,000-square-foot, \$53 million Research Innovation Center addition to its Infectious Disease Research Center. The center provides a hub for university scientists and students to partner with businesses to develop new products to treat and diagnose infectious diseases. The Research Innovation Center is a first-of-its-kind undertaking for CSU and will be a catalyst for bioscience industry development in Northern Colorado. *Source: Colorado State University*
- Colorado ranks sixth in the nation for its 2010 concentration of medical device and instrument employment (11,080). The 2009 average salary for a worker in this sub-category was \$63,920 (\$69,260 nationwide). *Source: Metro Denver EDC Bioscience Colorado Industry Cluster Profile*
- Colorado ranks 21st in the nation for its 2010 concentration of pharmaceutical and biotechnology employment (5,410 jobs). The 2009 average salary for a worker in this sub-category was \$93,000 (\$105,390 nationwide). *Source: Metro Denver EDC Bioscience Colorado Industry Cluster Profile*
- 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's Penrose-St. Francis Health Services and Memorial Health System. Penrose-St. Francis Health Services has been recognized as the only Colorado recipient of HealthGrades America's 50 Best Hospitals for four consecutive years, placing it in the top 1 percent of hospitals 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. *Source Penrose-St. Francis Health Services and Memorial Health System*