Colorado
Office of Economic Development and International Trade

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BIOSCIENCE DISCOVERY EVALUATION GRANT PROGRAM UPDATE

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Legislative Report to House and Senate Finance Committees
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Bioscience Discovery Evaluation Grant Program
By the Colorado Office of Economic Development and International Trade

The Bioscience Discovery Evaluation Grant Program (BDEGP) and Cash Fund was first created in statute in 2006. Now, in its fifth year, fiscal year 2010-11, the current program consists of three targeted grant programs to support the Colorado bioscience industry. Commercialization Infrastructure grants support joint efforts of industry and academia to create resources that were lacking but needed to grow the industry. Proof of Concept grants continue to substantiate research at Colorado research institutions with commercial applications. Early-Stage Company grants provide needed funding to companies commercializing technologies from Colorado research institutions by backing research, testing, and business development activities that will prepare them for additional third-party financing.

The Bioscience Discovery Evaluation Grant Program has been praised for its effectiveness in leveraging a limited state investment to move promising commercial technologies to market and supporting the biotechnology industry in Colorado. Since the first grants were made in mid-to-late 2007, the program has provided 116 grants to researchers at Colorado research institutions to bring their cutting-edge technologies closer to market. Forty-one grants have helped companies further these technologies as they complete studies, secure intellectual property, and develop their approach to bring their products to market. In addition, the program has supported four new bioscience technology organizations that identify and manage technologies, and support collaboration to bring necessary expertise together to advance novel Colorado biotechnologies to commercialization.

The State leverages this investment in the industry by requiring a one-to-one match for both Proof of Concept and Early-Stage Company grants. The economic benefit is realized near-term in the strengthening of our research institutions, the jobs required to fulfill the grant work, and the products and services purchased to complete grant work. Longer-run payouts come in the form of additional capital investment into the technologies and companies, the creation of new companies, and growing businesses adding high quality jobs. Of 164 grants made or approved under the program, 61 have completed work while the others are in process. To date, the program successes include the creation of 20 new Colorado companies and the direct creation of 161 jobs. Approximately $19 million from the BDEGP Cash Fund has been granted and will garner an equal amount in matching funds (excluding Commercialization Infrastructure grants). Additionally, these funds have helped the research institutions and early-stage companies to acquire an additional $63.6 million dollars in grants and investments to further commercialize these bioscience technologies.

The remainder of this report focuses on Program investments in calendar year 2010. The BDEGP Cash Fund was appropriated $4,500,000 in fiscal year 2009-10 and $5,499,321 in fiscal year 2010-11. The program's statute requires an allocation of at least 30% of the funds to Proof of Concept grants, 30% of the funds to Early-Stage Company grants, and up to 40% of the funds to Commercialization Infrastructure.

Narrative – Project Summaries

The Bioscience Discovery Evaluation Grant Program provides gap funding to advance promising research from Colorado's outstanding research institutions into the market place. The bioscience industry in Colorado is strengthened by such efforts, resulting in long-term job creation and company formation. Sixty-one project proposals were approved for funding in calendar year 2010. Total grant funds awarded to these projects are close to $7.9 million dollars. In addition to grant funds, matching funds are invested into the projects and technologies. Based on reports from grantees that were funded early in the calendar year, the outcomes are impressive. These grantees have already acquired about $500,000 in additional funding to further develop their technologies. Six new companies have been formed in 2010. Eighteen new jobs have been created. New intellectual property has been developed and is being patented, and technology is being out-licensed for further development.

As required by the program's statute, following are recipients, awards and descriptions of grants made under the Program in calendar 2010. Projects are grouped according to the focus of the research or technology to highlight the practical application of this work. Program funding supports biotechnology developments with applications in improving human health, agriculture improvements, and biofuels developments. In 2010, the Program funded new developments in the treatment of cancer and cardiac disease, along with tests for food and water safety, and the transformation of wastes into biofuel. Colorado researchers are developing cutting-edge biological technologies in many areas to treat and cure human disease, to convert wastes into usable energy and fuel, and to improve agricultural production.

Agriculture

Colorado State University. Primary Investigator - Davis. $33,860

The aim of this project is to develop a low-cost bio-fertilizer production system that will reduce fossil fuel use and greenhouse gas emissions from fertilizer production and transportation. The team has developed mixed environmental cultures of cyanobacteria in an on-farm setting and collected 42 sediment, soils, and water samples from around the state of Colorado and neighboring states. The project cultured and grew a planktonic cyanobacterial species. Temperature experiments are currently being conducted. The project is carrying out a market analysis targeting organic farmers in Colorado, New Mexico, Arizona, and Utah. The market analysis will play a critical role in identifying the first target market. The researchers received a follow-on grant of $45,200 from the National Collegiate Inventors and Innovators Alliance. Four part-time jobs have been funded by the grant.

Alzheimer's Disease

Clarimedix, Inc. $132,000

Clarimedix is developing a medical device to control blood supply and oxygen levels using Nitric Oxide as a vasodilator for treatment of Alzheimer's disease. Grant funds support prototype development, regulatory and other commercialization work.

Atherosclerosis

Illumasonix, LLC. $248,763

Illumasonix is developing a novel ultrasound technique, called Echo PIV, to measure blood flow velocity characteristics in the carotid artery and elsewhere in the vasculature. Clear images of arterial hemodynamics will help reduce the cost of treating atherosclerosis and stroke by aiding in the early identification and characterization of plaque and plaque build-up. The company has used grant funds to developed protocols for clinical studies in the U.S. and U.K. They have worked out regulatory approvals, and will be working on technical improvements and market approval.

Autoimmune Disease

National Jewish Health. Primary Investigator - Harbeck. $40,029

The aim of the project is to develop a cell line that will replace the need for certain types of white blood cells in individual human donors for the evaluation of antibodies that assist in the laboratory diagnosis of autoimmune chronic urticaria. Urticaria is a reaction pattern in the skin that is often characterized by hives.

National Jewish Health. Primary Investigator – Marrack. $38,904

The strategic objective of this grant work is to generate a new type of antibody that will specifically delete a small population of autoimmune-associated B cells while preserving other cells important for maintaining protection of the host from pathogens.

National Jewish Health. Primary Investigator – Zhang. $49,915

The strategic objective of this grant work is to develop therapeutic proteins useful in the treatment of autoimmune diseases like rheumatoid arthritis or lupus.

Biofuels

Colorado State University. Primary Investigator – Sharvelle. $75,000

The Project objective is to demonstrate a multi-stage anaerobic digester (MSAD) for conversion of animal waste to biogas. A pilot scale unit will operate at Rocky Ford Feedyard and will be trailer-mounted to facilitate outreach activities.

University of Colorado. Primary Investigator – Gill. $81,322

The goal of this project is to demonstrate a new pathway for the sustainable production of fungible gasoline from cellulosic biomass. Since the inception of the project, the investigator has received a $300,000 grant from the National Science Foundation.

Biomedical Coatings

Colorado State University. Primary Investigator – Reynolds. $56,122

The work is focused on investigating the viability of specified delivery materials for use in biomedical coatings. The successfully prepared materials were blended into a variety of polymers and their profiles are currently being assessed. Testing has shown that the materials can be incorporated into polymers using standard manufacturing processes without losing their structure. New polymers were synthesized that can be used as carriers for these compounds. The work includes optimizing some of the formulations, and biocompatible testing. A new company, Diazamed, Inc., was formed and the patent application was licensed to that company.

Colorado State University. Primary Investigator – James and Prawel. $52,482
The Project objective is to deposit consistent, biocompatible, phospholipid coatings within the first four to six millimeters of the surface of titanium orthopedic implants. The project also aims to understand the relationship between lattice pore size and PS penetration depth and show how deep coatings will enhance bone integration into the implant.

Colorado State University. Primary Investigator – Williams. $27,700
The strategic objective of this grant is to develop optimized coatings that are needed to improve the longevity and effectiveness of load-bearing hip arthroplasty components. Project work involves plasma engineering of biomaterials and using thin film deposition techniques to coat titanium surfaces. These thin films displayed significant effects against the growth of two well-known pathogens that often create infections with orthopedic devices and implants. The project has created one part-time position at Plasma Controls, a private company with an interest in the research.

Colorado State University. Primary Investigator – James and Dasi. $36,386
Bio-inspired polyethylene biomaterials (BioPoly) will be optimized for blood contacting implant applications including small diameter vascular grafts and polymeric heart valve leaflets. The material composition and manufacturing method will be optimized for blood compatibility and mechanical performance.

Cancer

CytoLogic, Inc. $250,000
This grant supports the commercialization of UNLEASH, CytoLogic's novel immunotherapy apheresis column, for cancer treatment. Grant work includes product manufacturing, an expanded canine trial, along with business planning and development. This work will move the technology along the commercialization path toward an Investigational Device Exemption application and human clinical trials.

Precision Biopsy, LLC $250,000
The grantee will design and prototype a fluorometer, to be utilized with the company's minimally invasive optical biopsy needle, for real-time diagnosis of prostate cancer in a clinical setting.

Colorado State University. Primary Investigator – Rovis. $40,824
The Project objective is to generate new pre-clinical stage anticancer agents and achieve commercial launch in the human anticancer market segment with potential in the veterinary market by applying Rovis Polyketide Cassette technology for synthesis of structurally important, patentable resorcinylic macrolide inhibitors of Heat shock protein 90.

National Jewish Health. Primary Investigator - Lenz. $42,209
The work identified a small region of an engineered protein that is responsible for its ability to activate natural killer (NK) cells in both mice and humans. NK cells are a type of immune cell normally existing in a resting state within the body and are a potential therapeutic target in the treatment of hematologic and metastatic cancers. A manuscript describing this mechanism has

been submitted for publication and is currently under review by an immunology journal. During the grant work, Bebra Therapeutics was formed and a PCT patent application has been filed. One part-time job was created.

National Jewish Health. Primary Investigator – Kachadourian. $14,825
The grant will support the demonstration of the efficacy of a new approach to sensitizing cancer cells to alkalizing agents. This new approach is based on inducing glutathione efflux through multi-drug resistant proteins that are activated by some flavonoids.

University of Colorado. Primary Investigator – Ahn and Su. $39,334
The aim of this grant work is to optimize a small molecule lead compound which synergizes with radiation, in order to develop novel compounds with a high combination index for use in radiation treatment of cancer.

University of Colorado. Primary Investigator – Ford. $87,500
The project objective is to identify and develop inhibitors targeting the interaction of the Six1 gene and its co-factor Eya for anti-breast cancer drug design.

University of Colorado. Primary Investigator – Koch. $90,668
Grant work involves preclinical experiments to establish the distribution, metabolism, toxicity, and efficacy of a prodrug, Plasmin Activated Doxazolidine (PAD), for the treatment of pancreatic cancer. PAD may be effective against a wide variety of solid tumors.

University of Colorado. Primary Investigator – Theodorescu. $88,046
The aim of this project is to design, synthesize, and evaluate novel second generation small-molecule inhibitors of Ral (proteins) based on lead compounds found in initial screening assays for the treatment of bladder cancer.

University of Colorado. Primary Investigator – Ahn and Liu. $39,334
The aim of this grant work is to optimize a small molecule inhibitor of histone deacetylases which shows high potency and selectivity against human xenograft tumors and a panel of cancer cell lines.

University of Colorado. Primary Investigator – Ross. $72,500
The goal of this project is to limit toxicity of an anticancer agent (Hsp90 inhibitors). Hsp90 inhibitors allow a combinatorial inhibition of multiple pathways that drive the oncogenic process and are an attractive anticancer targeting strategy; however, the Hsp90 inhibitors being developed are benzoquinone ansamycins which have a dose limiting toxicity. Under the project, 19-substituted benzoquinone ansamycins will be evaluated for effectiveness and decreased toxicity. A patent on the molecules being developed is in process.

University of Colorado. Primary Investigator - Liu. $99,360
The project will develop patentable compounds and test the efficacy of these inhibitors in human cancer cell lines. The outcome should improve the results of oncology drugs. The work also involves conducting absorption rate studies and testing and optimizing the potency of kinase

(enzyme) inhibitors in human cancer cells. Two-and-a-half full-time-equivalent positions have been created as a result of the project work.

University of Colorado. Primary Investigator – Flaig. $88,821
The goal of the project is to advance the clinical development of DAB389EGF for the treatment of bladder cancer. DAB389EGF is being explored as a targeted toxin that will bind to tumor cells and kill the targeted cell. Additional pre-clinical data will be developed to support a pre-IND meeting.

University of Northern Colorado – Mackessey. $50,480
The objective of this proposal is to investigate snake venoms, particularly those from numerous species of rear-fanged "colubrid" snakes, to identify, purify, and characterize compounds with activities specific to neoplasias, particularly breast cancer, melanoma, skin cancer and colon cancer.

Cardiac Function

Colorado State University. Primary Investigator – Orton. $44,763
The objective of the work is to demonstrate proof of concept of the design of a novel catheter-delivered mitral valve replacement device and its associated delivery system in a relevant animal model.

University of Colorado. Primary Investigator – Leinwand. $98,397
The strategic objective of this grant is to develop specific fatty acid (FA) species as therapeutic tools to promote beneficial cardiac adaptation in the presence of pathological stimuli. Using the fed python as a model of extreme physiological adaption, the project aims to determine the ability of FAs to regulate mammalian heart cell size, function and gene expression in both in vitro cell culture and in vivo rodent models.

University of Colorado. Primary Investigator – Grazia. $85,995
The project objective is to study and develop CD117 bone-marrow derived progenitor cells as a novel therapeutic in solid organ transplantation and Type I Diabetes. Researchers will conduct initial safety studies in human heart, lung and heart/lung transplant patients.

University of Colorado. Primary Investigator – Stauffer. $86,374
This project aims to provide in vivo evidence for a class of therapeutic agents that are beneficial for the treatment of heart failure in children. The purpose of the Project is to determine the ability of 3 ß1 selective adrenergic receptor antagonists and a ß2 receptor agonist to prevent cardiac pathology in the animal model of pediatric disease.

Chronic Pain

University of Colorado. Primary Investigator – Yin. $100,000
The Project objective is to develop agents that can optimize a promising, small molecule TLR4 inhibitor--T5342126--to selectively block opioid-induced TLR4 activation and improve opioid pain relief while minimizing opioid dependence.

University of Colorado. Primary Investigator – Ahn and Sammakia. $21,332
The aim of this grant work is to develop new chemical entities structurally related to tricyclic antidepressants, which remove antidepressant activity while acting as potent inhibitors of the opioid-mediated TLR4 response. These will provide novel compounds which when used in combination with opiods, eliminate side effects in treating chronic pain.

Dental

Colorado State University. Primary Investigator – Collins. $60,000
The intended research is to design a water plasma device that will generate chemically active species for tooth surface texturing and functionalization. The proposed research will determine the physical and chemical mechanisms of generating and delivering plasma species on tooth surfaces without external bleaching agents currently used by dentists. The water plasma device will be compact and similar in appearance to a "Water PIC".

Diabetes

University of Colorado. Primary Investigator – Wagner. $19,103
The project goal is to identify lead candidate peptides proving efficacious treatment options in delaying/preventing/reversing diabetes. A new company, Op-T, Inc., was formed around the technology and the work at CU has resulted in the creation of one new job.

Diagnostics – General Medical

Colorado School of Mines. Primary Investigator – Marr. $78,930
The Project aims to determine the practical utility of DVD optical pickups and associated microfluidics for commercial biomedical device application including inexpensive diagnostics and methods of drug screening for point of care testing.

University of Denver – Pourkamali. $72,359
The objective of this proposal is to demonstrate proof of concept toward development of a new biosensing platform based on nano-electro-mechanical molecular balance technology. The project aims to eliminate fluorescent labeling steps and sophisticated optical setups utilizing a sensor to directly provide an electrical output that can be interpreted using low cost conventional electronic integrated circuitry.

University of Colorado. Primary Investigator – Colgan. $81,000
Development, validation, and commercialization of a diagnostic blood test named "IBDiff", to distinguish between inflammatory bowel disease and irritable bowel syndrome. IBDiff relies on identifying the GM-CSF receptor, CD116, on circulating leukocytes as a specific biomarker in distinguishing IBS from IBD. Symptoms of IBS and IBD are similar while treatment is quite different, the ability to easily distinguish the two conditions improves treatment and reduces costs associated with testing for IBD. Project work has resulted in two new jobs, and the technology has received interest from companies that want to license the technology.

Food Safety and Water Quality

Colorado State University. Primary Investigator - Goodridge. $32,270
The objective of this proposal is the development of a multi-angle light scattering biosensor for rapid detection of waterborne viruses. In this method, viruses in large volumes of water are

concentrated using resin beads. The beads (with viruses attached) are added to a tissue culture flask, which contains a suitable cell line. The viruses will infect the cells, and after an incubation period of several hours, the infected cells are analyzed for viral infection using multiangle light scattering, which is a technique capable of detecting changes in virus infected cells relative to non infected cells (control). The method is expected to lead to faster detection times than currently used methods.

Colorado State University. Primary Investigator - Kipper. $21,330
The project goal is to build a prototype optical trap-based biosensor and design experiments to test a mathematical model describing the optical trapping phenomenon. The work aims to develop a rapid and sensitive technique for detecting food-borne and water-borne pathogens. During the year, significant progress was made on the design and construction of the optical trap-based biosensor. Components for the optical trap were obtained. The next steps are to complete construction of the optical trap and integrate it with the detection apparatus.

Colorado State University. Primary Investigator – Henry. $49,889
This grant supports the development of a sensor to detect food borne pathogens using selective biological assays and paper microfluidic devices.

Colorado State University. Primary Investigator – Reardon. $75,000
This project advances the technology of an optical enzymatic biosensor platform by using biological and engineering approaches to increase the biosensor lifetime and improving the system used for measuring substances in mixtures. The biosensor will be used to detect contaminants in water and food. The project is currently refining procedures for calibration and measurement. The team is also developing commercialization plans that include product manufacturing data such as costs, scalability, and equipment and capital expenditures. The project is in the process of finalizing two newly funded projects with industrial sponsors: a joint development project with a major dairy company and a demonstration project with a major environmental engineering company. Two new jobs and one new company have been created--OptiEnz Sensors LLC. The project technology has been licensed to OptiEnz.

Colorado State University. Primary Investigator – Rovis. $40,824
This project advances an oxygen-based, multichannel optical enzymatic biosensor platform toward commercialization with the application of measuring the concentration of chemical contaminants in water, food, and aqueous media.

Miscellaneous

National Jewish Health. Primary Investigator – Meehan. $19,440
The strategic objective of this grant work is to develop a commercial prototype device for the aspiration of joint fluid and the injection of medication into joints. This device would offer greater accuracy, patient comfort, and ease of use.

University of Colorado. Primary Investigator – Bryant. $99,900
The goal of the project is to create new therapies for treating patients who are in need of craniofacial reconstruction. Dr. Bryant's laboratory is optimizing hydrogel formulations which show promise for enhancing neocartilage deposition. The work will also introduce

biodegradation towards creating a functional engineered cartilage and will test the durability of the engineered tissue to maintain its mechanical function in living models.

National Jewish Health. Primary Investigator – Nick. $39,906
The strategic objective of this grant work is to develop a treatment for pseudomonas aeruginosa infections by disrupting the formation of biofilm with amino acid chains of aspartate and a DNA-cleaving enzyme. This treatment will benefit Cystic Fibrosis and severe burn and wound patients, as well as contact lens wearers that experience eye infection.

University of Colorado. Primary Investigator – Bowman. $100,000
The objective of this grant is to develop a dual cure polymer system applicable for end products such as orthopedic suture anchors and contact lenses. The polymer will be optimized and product prototypes will be developed.

Parkinson's Disease

Colorado State University. Primary Investigator - Tjalkens. $46,406
The objective of this project is to characterize the efficacy and safety of a novel series of anti-inflammatory compounds to test their suitability as a new treatment for blocking the progression of Parkinson's. A new company has been formed as a result of the work--Gliacor Therapeutics, LLC of Ft. Collins. This project has resulted in follow-on capital of $112,000, funded by the Michael J. Fox Foundation, and employed 1 graduate student at CSU in Dr. Tjalkens' laboratory.

Respiratory Function

National Jewish Health. Primary Investigator - White. $43,677
The goal of this grant is to identify a novel protein that disrupts cystic fibrosis sputum without causing or enhancing inflammation in cystic fibrosis lung disease or disease models. The project identified the necessary gene sequences and developed a system to purify the protein. Functional testing of the protein will be scheduled. As a result of the work, one new job has been created.

National Jewish Health. Primary Investigator - Bowler & Lynch. $30,836
Under this grant, a new commercially viable, clinically valid, set of texture-based tools for CT image analysis of chronic obstructive pulmonary disease (COPD) and idiopathic pulmonary fibrosis will be developed with the aim of quantifying diffuse lung disease. It is hypothesized that quantification will allow for appropriate novel treatment.

National Jewish Health. Primary Investigator – Riches. $91,000
The strategic objective of this grant work is to develop a therapeutic small molecule inhibitor for the treatment of lung fibroblasts that cause Idiopathic pulmonary fibrosis (IPF), a fatal lung disease severely limiting the ability to breathe.

University of Colorado. Primary Investigator – Hodges and Holmes. $87,500
The project objective is to develop a novel synthetic peptide vaccine to prevent Respiratory Syncytial Virus infection, a common respiratory virus impacting infants, the elderly and others with weak immune systems. This work will provide further proof of concept that the underlying invention can serve as a platform technology effective against viruses with similar mechanisms of viral entry.

PeptiVir, Inc. $250,000
This grant aims to prepare PVI-1000, a potential "universal" influenza vaccine for human clinical trials, and for additional investment. The grant funds manufacturing, clinical development and regulatory work.

Vision

University of Colorado. Primary Investigator – Gibson. $87,384
The project objective is to construct a prototype device allowing multi-photon microscopy imaging of the trabecular meshwork region of the human eye in vivo. This would allow for early diagnosis and intervention to prevent vision loss from glaucoma.

University of Colorado. Primary Investigator – Kahook. $80,460
The primary goal of the work is to design, develop and test a novel shape memory polymer based device for maintaining fluid communication between the anterior chamber and collection channels of the eye. Such a device would improve outcomes for glaucoma patients. The project has reported the creation of one new job, provisional patents are being pursued, and a new Denver-based company, ShapeTech LLC has been formed.

University of Colorado. Primary Investigator – Kahook. $83,000
The project will advance preclinical testing of a novel microsurgical implant leveraging Shape Memory Polymer technology. Under the grant researchers will develop a novel device to maintain fluid communication between the anterior chamber of the eye and the outside of the eye to manage and reduce high eye pressure in glaucoma patients.

University of Colorado. Primary Investigator – Olson. $45,900
The goal of this project is to position the "Zip Clip" for first-in-human use. The "Zip Clip" is a surgical system consisting of a minimally invasive deployment tool designed to accurately and safely deliver a nitinol clip to suture in the setting of complex ophthalmic microsurgical procedures, wherein conventional suturing is either impractical or critically time-intensive. The project team reports that they are working to structure a company around the technology.

University of Colorado. Primary Investigator – Anseth. $99,646
The objective of this project is to complete a pre-clinical efficacy study of the performance of a novel biomaterial system to promote wound healing in a human equivalent large animal model. Bioresponsive hydrogels were designed to increase the efficiency of wound closure and reduce scarring. One job has been created, and several new invention disclosures have been made.

Commercialization Infrastructure

Colorado State University Ventures - Colorado Center for Drug Discovery.
C2D2 was granted $650,000 in 2010 and $497,558 for calendar year 2011 to support their efforts. These grants support the C2D2 as a resource to faculty at Colorado research universities, bringing biology and chemistry faculty together to use chemical libraries, computational resources, bioinformatics, cheminformatics, database support, virtual high throughput screening, and Computer Aided Drug Design to pharmacologically validate drug candidates with patent-protected chemical matter and innovative therapeutics for unmet medical needs.

The infrastructure and framework of expertise created by C2D2 across Colorado research universities is expanding opportunities for emerging Colorado bioscience companies to access critical expertise and resources that would be difficult to establish within these companies. C2D2 has established a grant system that creates collaboration among researchers in Colorado and has created 1 full-time and 1 part-time job.

Colorado Institute for Drug, Device and Diagnostic Development. $895,604
The Colorado Institute for Drug, Device and Diagnostic Development (CID4) is managing life science discoveries from Colorado research institutions and/or Colorado start-up and early-stage businesses with the goal of creating bioscience jobs in Colorado. Grant Funds support operations of the CID4 and the development and management of life-science discoveries adopted as Projects of the CID4. The CID4 currently has 2 Projects, or companies, under its guidance and can claim jobs created and additional funding acquired for these Projects.

Colorado Initiative in Molecular Biotechnology at CU Boulder. $696,581
This grant supports the Colorado Initiative in Molecular Biotechnology in developing a state-of-the art research and education facility that links the basic sciences, engineering, clinical practice, and industry at the University of Colorado's Boulder campus to support breakthrough developments in areas such as engineering human tissues, RNA enzyme and aptamer based pharmaceutical, biorefining, and genetics. Grant funds support equipment, resources and personnel costs of the Integrated Novel Therapeutic Discovery Center.

University of Colorado, Drug Discovery Center. $1,000,000
This grant supports the establishment of a core facility for high throughput screening (HTS) of small molecule libraries against molecular targets, open to users within Colorado. A gap in capability for many current researchers in Colorado is the inability to perform HTS screens against a particular molecular target to identify hit molecules. Hit molecules can be developed into lead molecules which often form the basis for intellectual property, subsequent company formation and economic development. Under this grant, small molecule libraries for HTS screening will be purchased and developed and the facility will assist local researchers with the development of HTS screening assays. To date, the center has acquired a director and is establishing itself.