



University of Colorado

TECHNOLOGY TRANSFER OFFICE

Annual Report

**TECH
TRANSFER**

2010/11

The CU Technology Transfer Office pursues, protects, packages and licenses to business the intellectual property generated from research at CU. The TTO provides assistance to faculty, staff and students, as well as to businesses looking to license or invest in CU technology. For more info about tech transfer at CU, visit www.cu.edu/techtransfer.

Founded in Boulder in 1876, the University of Colorado has evolved into a network of four unique campuses: the University of Colorado Boulder, the University of Colorado Denver, the University of Colorado Anschutz Medical Campus and the University of Colorado Colorado Springs. The campuses had a combined fall 2011 enrollment of over 57,700.

University of Colorado faculty researchers secured over \$790M in sponsored research funding in fiscal year 2010-11. Discounting one-time federal stimulus dollars allocated in FY2009-10 through the American Recovery and Reinvestment Act (ARRA), this total represents an increase of about \$50M over 2009-10 totals. CU Denver and Anschutz Medical Campus researchers received over \$419M in combined sponsored research funding. CU-Boulder researchers received more than \$359M in sponsored research funding, and UCCS researchers received more than \$12M in sponsored research funding.

FY2010-11 TTO Performance at a Glance

- Invention Disclosures (see table at right) **250**
- U.S. Patent Applications Filed **253**
- U.S. Patents Granted **33**
- Total Options & Licenses **46**
- Exclusive Options & Licenses **37**
- Non-exclusive Licenses **9**
- Start-up Companies Formed from CU IP (see inside) **11**
- Service Agreements Executed (see chart at right) **668**
- Revenue (in millions) **3.9**
- Ratio of legal fee reimbursements to legal expenditures **71%**

Notes: The criteria used for TTO's performance metrics conform to the standards used by the Association of University Technology Managers (see www.autm.net). Service measures include interinstitutional and IP management agreements, materials transfer, confidential disclosure agreements and software evaluation.

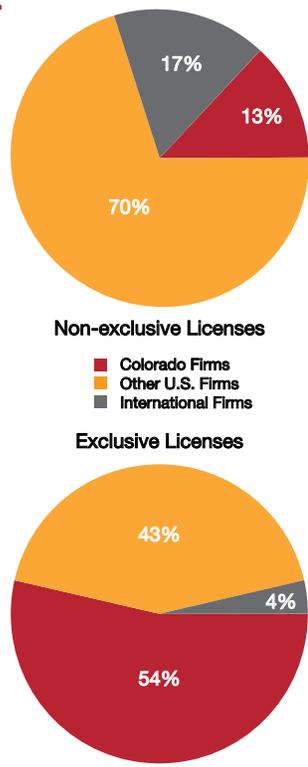
TTO Portfolio Snapshot as of July 1, 2011

- 331** U.S. Patents in Force
- 342** U.S. Patent Applications in Prosecution
- 166** Exclusive Licenses in Force
- 179** Non-exclusive Licenses in Force
- 91** Companies created based on CU IP still in business
- 59** Companies in which University License Equity Holdings, Inc. (ULEHI) currently holds equity

- \$2,203,926** Salaries, Benefits, Students
- 230,000** General Operating Expenses
- 243,246** System Overhead
- 180,175** Building Rentals
- 1,280,000** Patent Costs, Legal Expenses
- 100,000** Boulder Innovation Center
- 60,000** ULEHI Management Service Fee
- 300,000** Proof of Concept Programs
- 335,866** Treasury loan repayment & interest
- \$4,933,213** Total Expense

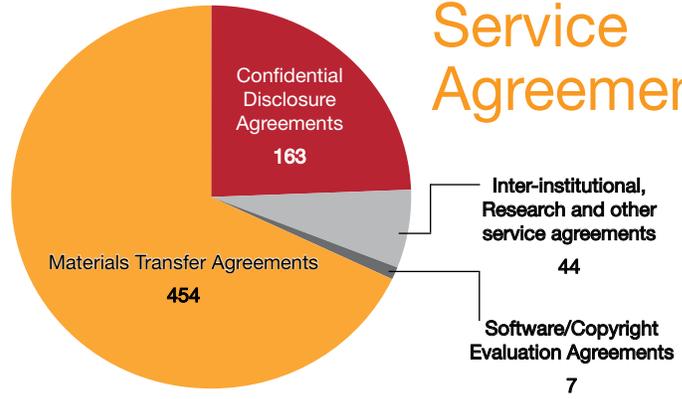
Colorado Impact

As of July 1, 2011, CU had 179 non-exclusive technology licenses and 166 exclusive technology licenses in good standing (see charts at right). Typically, non-exclusive licenses are designed to exploit intellectual property such as software and biomaterials that have ancillary value as development tools or in service applications. Exclusive licensing, by contrast, best advances the value of CU's most foundational and transformative technologies; exclusive licenses provide for investment and development into new products, creating in many cases new companies and jobs. The charts at right demonstrate that, while there is a global market for technology coming from the University of Colorado, most of CU's most high-impact technologies are being further developed and deployed under exclusive licenses by firms located in Colorado.

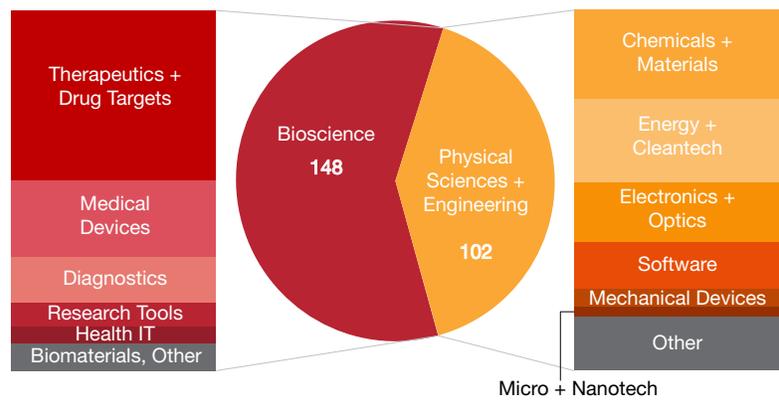


CU technologies have also been the basis of 114 new companies since 1994; of the 91 companies that are still operational, 85 have key operations in Colorado (although the headquarters may be located out-of-state). These Colorado-based firms have attracted more than \$1.3B in follow-on financing, including venture capital, federal grants and other types of funding.

Service Agreements



New Inventions



The technology transfer enterprise at the University of Colorado continues to advance, even though the challenging economic conditions for the innovation sector in the past few years have not improved. CU research continued to be a driver of economic activity, not only the economic activity generated by sponsored research, but an increasing impact from commercialization derived from investigators' inventive activity.

CU research investigators continued their creative activity by securing \$790M in sponsored research funding. Similarly, inventive activity at CU was strong, with 250 inventions submitted to TTO, up from 231 the previous year. Our U.S. patent filings continued at a productive rate during FY 2010-11; last year 253 patent applications were filed, nearly identical to FY 2009-10. Exclusive options and licenses, our primary transactional focus, were slightly down in FY 2010-11, with 37 compared to 41 the previous year. Eleven companies were created during FY 2010-11 based on CU IP, two more than the previous year. The technology mix of companies is reflective of previous years; eight of the 11 are bio-related and three are cleantech-related. In the past ten years, CUTO has been instrumental in licensing technology to 89 new companies; of the 72 companies that are still active, 64 have operations in Colorado.

Our revenue situation improved considerably in FY2010-11, and expenditures for major budget categories were essentially flat (see foldout at left). In FY 2010-011, TTO received \$3.9M in royalty and related license payments, and \$825K in patent reimbursements – both of these figures are improved from the previous year by about 40%. Through University License Equity Holdings, Inc. (ULEHI), CU now has an ownership interest in 59 companies. Last year we had one equity liquidation, which was our first return on seed-level investing begun in 2005. All told, we had a \$2.3M operating deficit for FY 2010-11.

The backstop to our deficit situation is the Technology Transfer Long-Term Investment (LTI) account. As of June 30, 2011, the balance of the LTI was \$5.3M. TTO will access these funds to cover the shortfall in the year just ended as well as in future years, if needed.

Over the past six years TTO has managed 139 separate projects as part of our Proof of Concept (POC) programs. POC funding helps to prepare CU technology for the next stage of funding/investment by reducing technology risk. By the end of FY 2010-2011, a total \$11.5M will have been invested in CU POC projects (see POC awards at right for a list of 2010-11 grants). These POC projects have been instrumental in the creation of 34 new companies, almost all of which are Colorado-based. Of the 139 separate projects, we have determined that 35 of these technologies are not viable. CU's POC programs have gained national recognition, and (based in large part on their success) the State of Colorado has renewed its state-level POC program, the Bioscience Discovery Evaluation Grant (BDEG) program, for five additional years; the State legislature also created the Colorado Science and Technology Innovation Reinvestment Act (SB 11-047), which will be fully implemented in 2014.

TTO's relationships with key entrepreneurial support organizations are strong, and continue to grow. We regard our partners – the Boulder Innovation Center (BIC), the Deming Center for Entrepreneurship at the Leeds School of Business, the Fitzsimons Redevelopment Authority and its Fitzsimons BioBusiness partners (FBBp), the Colorado Institute for Drug, Diagnostic and Device Development (CID4), the Colorado BioScience Association (CBSA) and the Colorado Cleantech Industry Association (CCIA) – as essential elements in our entrepreneurial ecosystem.

This fiscal year, TTO will celebrate a decade with its current leadership and operations. The thrust of our activities is slightly different today than during the first half of the decade: in the early years we were working to establish trusting relationships, build an office infrastructure, demonstrate that we could perform and contribute to the Colorado technology enterprise ecosystem. By all accounts, we have accomplished those goals, and have also maintained financial self-sufficiency since 2004.

Today we are faced with a different environment. We are still attracting outstanding technology, protecting it, maturing high-impact opportunities and executing financeable licensing transactions. One key difference today is the significant portfolio of licenses and equity we manage, ensuring that licensees are in compliance and helping them to succeed wherever we can. The second big difference concerns our Proof of Concept programs, where our role is to bring in quality deals and manage them to produce value for CU and the State of Colorado. Management in these two contexts varies considerably from case to case, but everything we do is accomplished with a team that has not grown in size for five years.

We look forward to the challenge of taking our operations to the next level, and working with you and your colleagues over the next decade to make CU a top university for technology transfer and receive the benefits that come from such an achievement.

Excellence in Tech Transfer

The CU Technology Transfer Office presented its annual awards on January 18, 2011 to faculty and companies developing technologies ranging from biofuels and hybrid aircraft engines to novel treatments for cancer, heart disease and eye disease. Awards were given to:

CU-Boulder

Ryan T. Gill Inventor of the Year
Jean N. Koster New Inventor of the Year

CU Denver and CU Anschutz Medical Campus
Malik Y. Kahook + Naresh Mandava Inventors of the Year
Dan Theodorescu New Inventor of the Year

CU-Colorado Springs

Rory A. Lewis New Inventor of the Year

miRagen Therapeutics Bioscience Company of the Year
Sundrop Fuels Physical Sciences Company of the Year

James C. T. Linfield
Colorado Technology Infrastructure Leadership Award

Lauren C. Constantini
Business Advisor of the Year

Mikhail "Misha" Plam
Serial University Startup Entrepreneur Award

Sustainability of Companies Created Based on CU Technology

In the last 18 years, **114 companies** have been formed based on CU IP. 23 are known to be non-operational.

Of the **91** companies known to be operating,

- **85** have operations in **Colorado** (although the headquarters may be located out-of-state)
- **19** have received CU Technology Transfer Office (TTO) Proof of Concept **investments**
- **7** have “**gone public**,” becoming publicly traded companies (either through an IPO or via a reverse merger)
- **17** have been **acquired** by public companies (including five from the above seven that have gone public)

Companies Created Based on CU Technology FY2010-11

BioSIPs Environmentally-friendly structural insulated panels for building construction

Clarimedix Non-invasive optical device for treating Alzheimer’s disease and other conditions

Claro Scientific Tox screen for detecting illegal drugs in urine

Clean Urban Energy Software for efficient energy management in large buildings

Colorado Cancer Therapeutics Novel anti-cancer compounds for lung and other solid tumors.

Mosaic Biosciences Degradable synthetic materials for wound care and tissue repair

OnKure Novel compounds that inhibit cancer cell growth and metastasis

ProtechSure Sunscreen with anti-cancer properties

Red Wave Energy Electron tunneling devices for solar energy conversion and other applications

Shape Tech Shape memory polymer devices for treating ophthalmic conditions

Suvica Screening and development of novel small molecule cancer drug candidates



Major Financing Events for CU Licensees

Grants/Gifts	\$5,971,000
Federal Grants	15,450,342
Seed/Bridge	4,000,000
Series A	26,750,000
Series B	8,900,000
Series C/D/E/F/other	10,496,854
State funding	2,223,622
SBIR/STTR	17,664,437
Acquisition/Merger	111,000,000
Total Financing	\$202,456,255

Based on over 70 transactions, companies created based on CU technology secured more than \$202M of financing in FY2010-11. This represents a major increase over FY2009-10’s adjusted total of \$79M, but does not yet reach the landmark \$233M in financings received in FY2008-09. FY2010-11 transactions were led by a partial buyout of CU licensee Taligen Therapeutics by Alexion in 2011, as well as by significant financings of EndoShape, SomaLogic, Clean Urban Energy and others.

CU Proof-of-Concept Grant Program

Proof-of-Concept programs provide grant funding to CU inventors to move promising CU technologies closer to key commercial milestones. In the past year, POC grants were awarded under the Bioscience Discovery Evaluation Grant (BDEG) program, and were funded in conjunction with the State of Colorado Office of Economic Development and International Trade (OEDIT), the Colorado Initiative in Molecular Biotechnology (CIMB) and the CU campuses.

Natalie Ahn, Department of Chemistry and Biochemistry, CU-Boulder, for developing radiation sensitizers for cancer; for prevention of division of tumor cells through highly potent cancer therapeutics; and for treatments for chronic pain.

Christopher Bowman, Department of Chemical & Biological Engineering, CU-Boulder, for improved shape memory polymers for biomedical applications.

Heide Ford, Department of Pathology and Department of Obstetrics & Gynecology, CU Anschutz Medical Campus, for identifying inhibitors of a breast cancer proliferation gene.

Emily Gibson, Bioengineering Program, CU Denver, for novel imaging of the eye for diagnosis and monitoring of disease.

Todd Grazia, Department of Surgery (Pulmonary Sciences and Critical Care Medicine), CU Anschutz Medical Campus, for cell therapy in solid organ transplantation and Type I Diabetes.

Robert Hodges, Department of Biochemistry and Molecular Genetics, CU Anschutz Medical Campus, for a novel vaccine for Respiratory Syncytial Virus (RSV).

Malik Kahook, Department of Ophthalmology, CU Anschutz Medical Campus, for an implanted device to reduce intraocular pressure and treat glaucoma.

Tad Koch, Department of Chemistry and Biochemistry, CU-Boulder, for preclinical evaluation of a novel therapeutic for pancreatic cancer.

Leslie Leinwand, Department of Molecular, Cellular and Developmental Biology, CU-Boulder, for novel therapeutics for cardiac disease.

Brian Stauffer, Department of Medicine (Cardiology), CU Anschutz Medical Campus, for improved treatment of heart failure in children.

Dan Theodorescu, Department of Pathology, CU Anschutz Medical Campus, for a novel treatment for bladder cancer.

Hang Hubert Yin, Department of Chemistry and Biochemistry, CU-Boulder, for novel drugs optimizing the clinical efficacy of opiates.