Summary

Fiscal year 2002 (FY02) was a year of transition and foundation building for the Case Western Reserve University Technology Transfer Office (TTO). The focus for FY02 was on engaging researchers through education and outreach, hiring committed and capable professionals, and building robust infrastructure as part of a five year plan to attain national ranking among top technology transfer organizations. In addition to heavy investment for future success, the TTO managed to significantly increase invention disclosures and revenue from the prior year.

Technology Transfer and the CWRU Vision

An effective technology transfer program enhances the university's research mission by engaging industry in our research in a meaningful way, and also by serving as another tool for the university to recruit top research talent. Research contracts with industry are another way in which students can learn by working on "real life" problems and also provide opportunities for student internships. And the primary goal of technology transfer is to translate university research into products that positively impact society. Additionally, the financial benefits of technology transfer enable departments to fund further research.

The TTO goal is to be recognized as a top technology transfer organization among U.S. educational institutions within five years. In order to attain this status, the TTO's metrics must fall within nationally recognized metrics at top universities. For instance, every $2 Million in university research expenditures should result in one new invention disclosure—which means approximately 125 invention disclosures per year based on our $250 Million in research expenditures. When the number of invention disclosures increase, so do the opportunities for licenses and startup companies. The TTO expects to be able to execute approximately 20 licenses/options per year, and to create two spinout companies based on university technology. The TTO’s annual revenue goal is $5 Million. This level of technology transfer directly supports the university's mission to be preeminent in research, effective in education and provide value to society.
Our first year objectives were to establish a professional, efficient and service-oriented technology transfer function; to provide university-wide leadership and education in the effective identification and management of intellectual property assets; and to provide community leadership and education in economic development. The TTO is proud to report significant progress toward these objectives.

**Infrastructure**

Service, effectiveness and success can only come with good people. We hired four outstanding and committed professionals with broad experience in both business and research areas. These fulltime employees enabled us to phase out consultants at the end of FY02. We also hired several support staff to assist in administration and patent filing. These new additions to the CWRU community will be the foundation of a successful technology transfer function for years to come.

Along with new staff, the TTO installed a new database system specifically designed for the management of cases, legal correspondence and invoicing which are integral parts of a vital technology transfer office. The “JAKE” database was developed for Harvard University Technology Transfer and runs on the 4D platform that is in use at other successful offices. All of our old case files and agreements have been entered into the new database, and the TTO has plans to add numerous more time-saving, customized features including automatic invoicing capability and tracking of material transfer agreements.

The TTO has implemented a number of processes that are already making the technology transfer process simpler. We have implemented a new one-page invention disclosure form as a replacement for the previous lengthy form. Templates for licenses, non-disclosure agreements, material transfer agreements and inter-institutional agreements have been established. The three filing systems that formerly served three distinct technology transfer organizations at CWRU have been merged into one physical filing system.

By investing in people, technology and processes, the university is demonstrating its commitment to have a viable technology transfer function in service of its faculty. While return on these investments will not come overnight, the TTO is laying the groundwork for much more success in the future.

**Education**

Education and outreach to CWRU faculty and staff is an ongoing high priority for the TTO. As a service organization to faculty, it is essential that the TTO is visible and accessible to our researchers. As such, several educational initiatives have been started during the past year.

Standard educational presentations about technology transfer policies and procedures have been developed and delivered at a number of departmental forums, so that university researchers may better understand the technology transfer process. The TTO has delivered seminars about technology transfer and
university startup companies as part of the EDI Entrepreneurial Perspective Series. The TTO has initiated a new lecture series for entrepreneurs for the Case School of Engineering.

In addition to presentations by TTO staff, the TTO will be disseminating information via its new website. The new website will be another way for faculty and staff to easily access information, forms, policies and contact information.

Another vehicle for technology transfer information and news is the new TTO newsletter. The first quarterly issue was distributed in September 2002.

As part of our commitment to achieve national prominence, the TTO participated in the Association of University Technology Managers (AUTM) annual survey, and presented at both AUTM and LES (Licensing Executive Society) national meetings this year.

**Business Development**

While focusing most of our time on building infrastructure and reaching out to university researchers, the TTO has not forgotten the importance of our business and community contacts. We participated in economic development events and continue to make regular public appearances. We also participated in economic development organization meetings on a regular basis with Ohio TechNet and BioEnterprise. Members of the office have met with venture capitalists and other seed funding organizations, law firms and other service firms, in order to establish relationships for future startup companies. These contacts have helped us to establish our presence in the local community and will help to serve our goals in the years ahead.

The TTO recognizes the importance of startup companies especially to develop new technologies that may be in an immature or completely new market. The TTO arranges incubation services for new licensees of CWRU inventions where appropriate. Specifically, the TTO is capable of providing startup documentation, recruitment of management team, business plan assistance, and general advice. Financial support is also offered through the TTO’s extensive network of venture capital funds and through CWRU’s own fund, Case Technology Ventures (CTV). CTV is CWRU’s new source of capital for pre-seed-stage companies based on University intellectual property.

**Offices**

The TTO was located in the Health Sciences Library, School of Medicine during FY02. We have moved into temporary space on the 3rd Floor of Sears/Enterprise. By the end of FY03, the TTO and the Office of Research Administration will be located together on the 6th Floor of Sears/Enterprise. Relocating both departments to the same location will increase the efficiency of interaction between the two offices and, more importantly, will be more convenient for our researchers by creating a “one-stop” service experience.
Examples of Successful Licenses

**Drugs**

*Invention Leads to New Cancer Treatment*

In the 1980s, CWRU researchers Drs. Fritz Rottman, Rick Woychik, and Edward C. Goodwin, in conjunction with researchers from a major pharmaceutical company, discovered Bovine Growth Hormone (BGH) polyadenylation (PolyA) signal. The BGH PolyA signal is sometimes called an amplifier because it increases the amount of a desired product, such as a protein, that is made by a genetically modified cell. At the time of discovery, the CWRU researchers believed their discovery was not significant and decided against patenting it. Luckily, the pharmaceutical company decided to patent the BGH PolyA signal and later transferred the patent back to CWRU.

The technology later became a laboratory standard because of its early discovery and well studied characteristics. In the mid 1990s CWRU licensed the BGH PolyA signal to a biotechnology company, which in turn used the technology to develop the first monoclonal antibody for treating non-Hodgkin’s Lymphoma. Today the drug is widely used for successful treatment of non-Hodgkin’s Lymphoma. Sales of the drug are close to $1 billion per year. CWRU is receiving royalties, and per university policy, distributes half of the income to the inventors. Today, more than 20 years after the initial discovery, the invention is a significant contributor to the creation of our new technology transfer infrastructure, and more importantly, is impacting the lives of people with cancer.

**Software**

*Software Analyzes Family and Pedigree Data*

During FY02 the TTO licensed CWRU’s renowned S.A.G.E. (Statistical Analysis for Genetic Epidemiology) software. S.A.G.E., developed in the lab of Dr. Robert Elston within the NIH-funded Human Genetic Analysis Resource, is a software package containing a suite of programs for use in genetic analysis of family and pedigree data. The software has been used by hundreds of researchers over the past decade to analyze data on a wide range of attributes.

The software has been licensed for exclusive distribution by Statistical Solutions, an Irish-based software company with offices in Cork, Ireland, and Saugus, Massachusetts. Statistical Solutions is an emerging leader in the area of advanced statistical analysis solution.

CWRU’s multi-year agreement with Statistical Solution will increase the global distribution and use of this powerful software tool, which has the ability to greatly aid researchers in understanding the links between family history and genetics.

CWRU receives royalty income from the sale of this software package by Statistical Solutions and, per university policy, distributes half of the income to the inventors.

**Fuel Cells**

*CWRU Leads in Alternative Power*

CWRU continues to be a global leader in the area of alternative power sources. Our newly announced Case Advanced Power Institute (CAPI) is rapidly becoming the world-leader in alternative power technologies, including fuel cells, an efficient and ecologically sound power device. CWRU is fortunate to have some of the leading researchers in this area, including Dr. Robert Savinell (Dean of the Case School of Engineering) and Dr. Morton Litt (Professor, Macromolecular Science).

Drs. Savinell and Litt have developed a unique membrane (a key component of fuel cells) that has been licensed to three global companies. All three companies are aggressively working to use the membrane in their bids to bring this advanced, and environmentally friendly, power system to the commercial marketplace. CWRU will receive royalties from these licensees and, per university policy, will distribute half of the income to the inventors.

TTO continues to look to CWRU’s fuel cell technology and CAPI as a source of exciting, commercially valuable technology.
**Statistics**

**Invention Disclosures**

CWRU researchers disclosed eighty-eight new inventions during FY02. This represents a 44% increase over the prior year (FY01). The pattern of invention disclosures by School/College largely followed the pattern of research funding.

**Material Transfer Agreements**

During FY02, the TTO assumed responsibility for the review and negotiation of all material transfer agreements (MTAs) between university researchers and external organizations. These agreements govern the use and ownership of materials coming into or going out of the university research laboratories. Although these agreements do not necessarily result in new inventions or licenses, they are a vital part of our research activity, and are one significant measure of the volume and variety of work being conducted at the university. Oftentimes these agreements represent time-consuming negotiations, due to fundamentally different objectives of a company vs. a research institution. For example, confidentiality may be of great importance to a company whereas the university may be interested in protecting a researcher’s publishing rights. In FY02, TTO executed 182 Material Transfer Agreements.

**Royalty Income**

Licensing revenues in FY02 totaled $3 million, a 50% increase over last fiscal year.

**Patent Filings and Awards**

Seventy-nine U.S. patent applications were filed in FY02; Thirty-four of these were provisional applications (i.e., applications that can be filed at a lower cost to establish an early filing date). A total of twenty-five U.S. patents were issued to the university.

**Licensing**

By June 30, the professionals we hired during February-May were in the process of negotiating sixteen new licenses/options and evaluating the potential of four new startup companies.
Casey Porto, Associate Vice President

Casey joined Case Western Reserve University (CWRU) on February 1, 2002. Previously, she spent 6 years in Technology Transfer at Carnegie Mellon University, with the last 2 years as the Director of the office.

Prior to joining the technology transfer office, Casey was at the Pittsburgh Supercomputer Center, where she managed the Center’s educational programs for researchers using the supercomputer, and also led an NSF initiative to bring computational science to high schools. She began her career at Digital Equipment Corporation, as an account manager for technical resellers.

Casey has served on the boards of several start-up companies and non-profit corporations. She holds a B.S. in Psychology and an M.S. in Information Science from the University of Pittsburgh. She is a member of the Association of University Technology Managers and the Licensing Executives Society.

Nick Frollini, Director of Engineering and Physical Sciences

Nick was a consultant to CWRU’s technology transfer program beginning in October 2001, and joined CWRU as an employee on June 1, 2002. Before coming to CWRU, Nick was director of the internal mergers and acquisitions group at Redleaf Group Inc., an early-stage venture capital firm in Pittsburgh. Prior to Redleaf, Nick held several positions with PNC Financial Services Group, most recently as chief technology officer of the VentureBank@PNC business unit.

Nick received a B.S. in industrial management and economics from Carnegie Mellon University. He is a member of the Association of University Technology Managers and the Licensing Executives Society.

Bill Szczepaniak, Senior Licensing Manager, Life Sciences

Bill Szczepaniak joined the TTO on May 1, 2002. Before coming to the TTO he had been a licensing officer specializing in biotechnology in the technology transfer office of Carnegie Mellon. Prior to Carnegie Mellon, Bill was director of technology development for Prolume Ltd., a Pittsburgh biotechnology company. He also had been a visiting faculty member at Carnegie Mellon’s Center for Light Microscope Imaging and Biotechnology. He is the primary author of more than a dozen peer-reviewed scientific articles and published abstracts.

Bill is a member of the American Academy for the Advancement of Science, the Tissue Engineering Society International, the Licensing Executives Society and the Association of University Technology Managers. He holds a B.S. in neuroscience from the University of Pittsburgh and has completed post-graduate work at the University of Texas at Dallas.

Michael Haag, Licensing Manager, Life Sciences

Michael Haag joined the TTO in the Life Sciences area on May 13, 2002. Michael comes to the TTO from the Cleveland Clinic where he was most recently a Biotechnology Analyst for the Cleveland Clinic Foundation Innovations office. He began at the Cleveland Clinic as a Research Assistant working in Molecular Biology in the field of Cytokines and Signal Transduction with George Stark.

Michael holds a B.S. in biology and chemistry from John Carroll University. He is a member of the American Chemical Society, the Licensing Executives Society and the Association of University Technology Managers.

Neil Veloso, Licensing Associate, Life Sciences

Neil Veloso joined the TTO in the Life Sciences area on October 1, 2002. Most recently he was with biotech company Athersys, Inc., as one of the original members of the company’s High Throughput Screening group. He also worked on Target Validation and Process Development for Athersys. Before Athersys Neil worked with Gliatech, Inc., where he worked in the In Vivo Modeling group to develop an animal model of Alzheimer’s disease as a platform for drug screening.

Neil holds a B.A. in biology from Johns Hopkins University and a M.S. in Environmental Health Sciences, with a specialization in cancer biology from Case Western Reserve University. He is a member of the Association of University Technology Managers.