

Temple University

Research Development Report

Reporting Period:

July 1, 2010 - June 30, 2011

Commercial Development of Research

The Temple University Office of Technology Development and Commercialization (OTDC) actively seeks partnerships with companies to commercialize Temple-owned inventions. Rights to commercialize an invention are negotiated and granted through a royalty-bearing licensing agreement managed by OTDC. Companies interested in exploring Temple's licensing opportunities can visit the iBridge Network or contact OTDC to identify relevant opportunities.

Temple inventions generated \$1,245,272 in gross royalty revenue during the reporting period, which coincides with the University's fiscal year ending June 30, 2011. In addition, companies provided \$780,000 in research funding related to inventions under license or option.

Pursuant to the Invention and Patent Policy, the net (of 20 % tax) royalty revenue and the equity generated by each invention (after deduction of the associated costs) are shared with the inventors (50%) and with their departments and colleges (25%). During the reporting period, this resulted in cash payments of \$472,077 to inventors (excluding the value of directly issued start up equity) and \$236,039 to Temple departments and colleges. Cash payments made since 1991 total \$4.62 million to inventors and \$2.87 million to Temple departments and colleges.

Un-reimbursed patent costs (\$340,000) and other operating costs (\$260,000) together with the cash payments made to inventors brought the total cost of the Technology Development and Commercialization program to \$600,000 in FY 2011.

As a key component of the Temple Research Administration, OTDC is the commercialization partner for the wider Temple University community including faculty, staff, and students. Temple faculty members drive the creation of new intellectual property through research funded by federal, state, and private organizations. The OTDC is responsible for managing these intellectual assets by evaluating, protecting, and enabling their commercialization through academic as well as corporate partnerships.

As new intellectual property is developed, OTDC is the intake point to establish a formal record of disclosure using the Temple Invention Disclosure Process. The invention is evaluated according to a three-step review process designed to identify intellectual property with the highest probability for commercial success.

An appropriate intellectual property protection strategy is determined by OTDC and Temple's patent counsel. Intellectual property protection enables individual marketing campaigns to identify potential commercial partners including large, small, and startup companies.

OTDC Mission

Assist the faculty, staff, and students to effectively evaluate, protect, and realize the transfer of commercially viable intellectual property to the marketplace and contribute to knowledge based economic development of the community and beyond.

Core Goals to Support Mission "CREATE"

Communicate technology development and commercialization benefits/opportunities internally within the Temple community

Recognize innovators for their valuable contributions to society

Educate Temple faculty, staff and students regarding the technology development and commercialization process

Attract funding to enable commercialization

Transfer technology through unique industry partnerships and programs

Energize the local, state, and national economy by introducing new products into the marketplace

Research Licensing Agreements

Temple University continues to have one standard license agreement form that is customized in a variety of ways to fit each particular licensing arrangement. This helps accommodate, for example, the nature of the licensed patent (e.g. product or process) or of the financial arrangement (e.g. cash only, equity only, or a combination of cash and equity). A copy of this standard license agreement form is available at:

<http://www.temple.edu/ovpr/ott/docs/agreements/la1.doc>

Training Students and Health Professionals

During the reporting period Temple University continued working under agreements with other institutions to facilitate those students' transfer into Temple and promote their long-term academic success. These agreements continue to help students in the health sciences who are anticipating careers in the health professions.

Temple University continues to have Dual Admissions agreements, which include substantial merit scholarships, with five Pennsylvania community colleges (Bucks County, Delaware County, and Montgomery County Community Colleges, Harrisburg Area Community College, and the Community College of Philadelphia).

Health-related programs in the following Temple University schools, colleges, and departments have program to program agreements that define the articulation between community college degree programs and Temple Baccalaureate programs:

Nursing: Bucks County Community College, Community College of Philadelphia, Northampton Community College. Degree completion programs based on these agreements are offered on-site at the three community colleges.

Allied Health: Long-standing agreements with Harcum College, Keystone Junior College, Messiah College, and Wilkes College.

Also, Temple University continues to use Formula Funding to support graduate level training and education through research fellowships in each of the basic science departments and the MD/PhD program at the Temple Medical School. To date, more than 60 Formula Fund fellowships have been awarded to Temple students.

Commercial Research Development Training

During the reporting period, Temple University's Office of Technology Development and Commercialization provided outreach to faculty, staff, and students through numerous presentations at department and college/school meetings, and at the annual orientation sessions for new faculty and graduate students. All new faculty are also sent a technology development and commercialization information packet.

During the reporting period, the Temple University Office of Postdoctoral Fellows (<http://www.temple.edu/grad/pfo/>) developed and offered information and training to postdoctoral fellows, visiting research scholars, and visiting research faculty in many areas of research and career development, including various aspects of technology development and commercialization. The Office of Postdoctoral Fellows has been moved to the Graduate School and staff report directly to the Graduate School Dean.

Outreach to Businesses Regarding Recent Research Developments

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As part of the commercialization process, a startup company may be the most appropriate vehicle for bringing a new technology to market. Temple University is uniquely positioned to facilitate the creation of new startup companies through its Office of Strategic Initiatives and Corporate Partners (OSI). OTT and OSI work in close partnership to bring new companies to a stage appropriate for licensing technology from Temple.

Examples of startup companies facilitated through Temple University include:

Proplex Technologies LLC, an innovative biotechnology company, focused on leveraging the two-dimensional High Performance Liquid Electrophoresis (2D-HPLE) for the isolation and

identification of protein-complexes (Biomarkers). Protein-complexes are the key to unlocking the mystery in virtually all cellular functions in normal and diseased state. Discovered by Dr. Frank Chang and patented by Temple, the 2-D HPLC technology separates serum protein complexes from human blood sample, cerebrospinal fluids and other body fluids into compact and distinct spots and thereby isolates and identifies critical disease biomarkers. Utilizing this technology, we have identified a novel Biomarker that is involved in the cell signaling pathway and is over-expressed in early and late stage breast cancer patients. Additionally, markers for other cancers such as pancreatic, liver and skin cancers have been discovered. Proplex is seeking to partner with industry leaders in Biotechnology to isolate novel Biomarkers and develop drug candidates for treating diseases such as Cardiovascular, Alzheimer's, Rheumatoid Arthritis and Malaria. Please visit <http://www.proplextech.com> for additional information.

Creative Footwear Technology, a bio-design shoe manufacturing company is a partnership between Drs. James McGuire and Kendrick Whitney, School of Podiatric Medicine along with Richard Posoff, entrepreneur and Temple University to commercialize patent pending orthotic shoe and insole assemblies. The shoe design is crafted with comfort in mind and will be initially targeted to those suffering from diabetic foot ulcers.

Onconova Therapeutics Inc. was formed to commercialize a wide variety of anticancer and anti-inflammatory compounds, including a new class of COX-2 inhibitors, developed by Dr. E. Premkumar Reddy and his collaborators (Biochemistry Department and Fels Institute, School of Medicine). [Onconova Therapeutics Inc. Website]

*R.E.D. Laboratories NV** was formed to commercialize the discovery by Dr. Robert Suhadolnik and collaborators (Biochemistry Department and Fels Institute, School of Medicine) of an abnormal low molecular weight RNase L protein in chronic fatigue syndrome (CFS) patients. Prior to this discovery there was no diagnostic test for CFS, and physicians had to rely solely on a combination of clinical symptoms, each of which can also be due to other disease conditions. [R.E.D. Laboratories NV Website]

Research Development Collaboration

Along with other area academic institutions, Temple University continued to participate in an advisory capacity in the Biotechnology Greenhouse Corporation. Through this activity, Temple is positioned to collaborate with all other participants, including other applicants for CURE funds and business entities in promoting research in Southeastern Pennsylvania. Temple also continues as an active member of the Pennsylvania Cancer Alliance.