Thomas Jefferson University

Research Development Report

Reporting Period:

July 1, 2012 - June 30, 2013

Commercial Development of Research

The Office of Technology Transfer and Business Development (OTT) was implemented in 1984. Within this Office, Thomas Jefferson University (TJU) has established procedures in place for the commercial development of new technology from Jefferson research.

• TJU facilitates patent protection and proceeds with systematic marketing efforts to identify potential licensees where the research results have commercial value.
• TJU has actively promoted commercialization of its technologies since OTT was implemented.
• The OTT has actively engaged in networking with regional pharmaceutical industries and local state funded economic development agencies, to promote partnerships to help further TJU’s research results. In the current funding period, OTT invited representatives from the local state-funded economic development agencies to faculty outreach events. Several technologies were evaluated by the Science Center, a Southeast Pennsylvania economic development agency, for its early stage quod erat demonstrandum (QED) proof-of-concept gap funding program.
• The OTT aggressively markets TJU’s research results in a systematic fashion coupled with flexible license arrangements.
• The flexible license arrangements provide incentives to TJU’s external commercial partners that desire to commercialize TJU’s research results.
• During the reporting period, OTT conducted 303 outreach events, including networking opportunities, business meetings on TJU technologies, and training presentations for TJU employees. The training presentations, to research departments as well as to individual faculty members, educated TJU researcher participants about technology transfer and marketing processes, technology development funding opportunities, and licensing deal structures.
• The general audience presentations also involved speakers from industry sectors and patent attorneys.

Based on the available AUTM FY2012 information, the results for Thomas Jefferson University are:

• $90,775,000 in total federal and industrial research funding
• $979,210 in gross license income
• 13 licenses or options were executed
• 29 active licenses or options yielding license income
• 13 start-up companies were still active
• With 53 new disclosures received, 20 new patent applications were filed, and 13 US applications were filed.
• 6 US patents issued.

Research Licensing Agreements

Thomas Jefferson University uses Exclusive and Non-Exclusive licensing agreements that were developed prior to June 30, 2004. The agreements are for use in the licensing of research results related to medical devices, drugs or other research discoveries. Copies of these agreements were previously submitted to the Commonwealth.

Training Students and Health Professionals

In addition to Thomas Jefferson University Hospital and Methodist Hospital, Jefferson’s Medical College is affiliated with a wide range of academic medical centers in northeastern, southeastern, central and western Pennsylvania at which we educate our medical students. These institutions provide core undergraduate rotations for third year medical students and elective and subspecialty clerkships for fourth year medical students. These institutions include:

- Abington Hospital, Abington, PA
- Albert Einstein Medical Center, Philadelphia, PA
- Aria Health, Philadelphia, PA
- Bryn Mawr Hospital, Bryn Mawr, PA
- Bryn Mawr Rehabilitation Hospital, Bryn Mawr, PA
- Crozier-Keystone Health System, Chester, PA
- Excela Health Latrobe Hospital, Latrobe, PA
- Lankenau Hospital, Wynnewood, PA
- Magee Rehabilitation Hospital, Philadelphia, PA
- Paoli Hospital, Paoli, PA
- Reading Hospital, Reading, PA
- Wills Eye Institute, Philadelphia, PA
- York Hospital, York, PA

During this academic year, the Division of Graduate Medical Education (GME) continued in its mission to provide oversight, guidance, and support to all GME programs at Jefferson and the affiliates for which the Hospital is the sponsoring institution. Residents rotate to a number of
affiliated hospitals for their specialty-specific core and subspecialty graduate programs. The affiliated hospitals for GME include:

- Albert Einstein Medical Center, Philadelphia, PA
- Bryn Mawr Hospital, Bryn Mawr, PA
- Children’s Hospital, Philadelphia, PA
- Aria Health, Philadelphia, PA
- Lankenau Hospital, Wynnewood, PA
- Magee Rehabilitation Hospital, Philadelphia, PA
- Moss Rehabilitation Hospital, Philadelphia, PA
- Reading Hospital, Reading, PA
- Wills Eye Hospital, Philadelphia, PA

The ACGME Outcome Project and the implementation of competency-based education in all GME programs are fully implemented into all GME programs within the institution. Over the past year, continued institution-wide educational forums, assistance in outcomes-based curriculum development, pilot programs for the development of new resident evaluation instruments, and individualized consultations have occurred.

Jefferson sponsored over 128 CME certified activities in this last year. In FY 12 (latest completed data), Jefferson OCME designated these activities for 233.5 *AMA PRA Category 1 credits*. These activities involved 17,493 participants.

JMC has in place a patient encounter log system (PELS) for tracking core educational requirements during clinical clerkships. Counseling for smoking prevention and cessation are core requirements in three clerkships. This data was reported for the 2012-13 academic year as of June 19, 2013. Compliance with this requirement is high.

<table>
<thead>
<tr>
<th>Clerkship</th>
<th>Number of Students Reporting</th>
<th>% Students Reporting Counseling for Smoking Prevention/Cessation for 3 or more patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Medicine</td>
<td>201</td>
<td>94</td>
</tr>
<tr>
<td>Family Medicine</td>
<td>220</td>
<td>99</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>225</td>
<td>95</td>
</tr>
</tbody>
</table>

Abigail Kay MD (Department of Psychiatry and Human Behavior) continues to teach a large group session for all first year medical students, during the Introduction to Clinical Medicine course, on the physiology, impact and treatment of tobacco addiction that includes evaluation for readiness for smoking cessation. There are also a total six lectures in the required second year class, Foundations in Clinical Medicine, that address tobacco-related pulmonary injury (three) and smoking and tobacco cessation (three).
Commercial Research Development Training

Jefferson’s Office of Technology Transfer (OTT) conducts numerous outreach training programs throughout the year to educate the faculty, new employees, and research staff about OTT’s services and procedures for licensing the university’s research results. In the past year, OTT hosted 19 events for the TJU research community on intellectual property and patenting topics, technology transfer activities and services, and industry partnering opportunities. OTT also visited individual departments for small group presentations on the invention disclosure and commercialization process, confidential disclosure agreements and material transfer agreements.

Jefferson’s OTT has also formed strong partnerships with the other universities in Philadelphia and with the many Commonwealth agencies and biotech and pharmaceutical companies that support our technology commercialization programs. In particular, under four Keystone Innovation Grants (KIGs) from the Commonwealth of Pennsylvania and one Keystone Innovation Network grant received via the University City Keystone Innovation Zone office, Jefferson’s OTT has provided technology commercialization services and mentoring to the Office of Technology Management (OTM) and director at University of the Sciences in Philadelphia (USciences) and also to Cheyney University and Widener University. Recently Jefferson’s OTT has expanded its services and mentorship to Salus University and the Philadelphia College of Medicine (PCOM). The mentoring and partnership programs provided research collaboration opportunities drawing on the unique expertise at each university.

Since 2010, through its awarded Pennsylvania Commonwealth Innovation Grant, Jefferson’s OTT allocated a Technology Development Grant to enable TJU researchers to obtain additional supporting data for commercially promising research. The Grant funding enabled the investigators to obtain additional preliminary data, and using that data, to submit a proposal to the regional economic development agency, Science Center, QED proof-of-concept funding program. In 2011, one project that was awarded a Technology Development Grant, a proposal for an early detection assay for pancreatic cancer, was selected by an industry expert panel to receive one of three $200,000 QED awards from the University City Science Center—the first QED award for TJU.

OTT continues its practice to understand and meet the needs and concerns of faculty members in order to enhance technology transfer services. The internal outreach efforts, including a Savvy Innovators Seminar Series on intellectual property and commercialization topics, continue to strengthen the working relationship between OTT and faculty members and to increase awareness and foster interest in technology transfer.
Outreach to Businesses Regarding Recent Research Developments

In June 2011, OTT assisted a Jefferson faculty member’s application for a regional economic development agency’s pilot funding program that facilitated a close working relationship between the faculty member and a regional pharmaceutical company. In late June 2013, the development agency announced another application round for the funding program, to which several Jefferson faculty members have applied. Additionally, in February 2013, OTT launched the “Research Toolbox Initiative,” a new program that aims to market a combination of Jefferson faculty’s expertise and research tools to targeted companies in order to seek collaboration and sponsored research opportunities.

Research Development Collaboration

TJU has a long history of collaborating with researchers at other institutes and universities in the region, and we expect this practice to continue. Jefferson’s faculty members are routinely engaged in collaborative research projects with investigators at other research centers or institutes both within the Commonwealth and around the country.

When new intellectual property develops from these collaborations, TJU and the collaborating organization(s) enter into an inter-institutional agreement that covers the management of patents and licensing of technology.

TJU is also a leader in establishing and maintaining the Pennsylvania Cancer Alliance, and seeks opportunities for the cancer institutes in Pennsylvania to collaborate on joint grants, research programs, and other development projects.