VIRGINIA TECH INTELLECTUAL PROPERTIES INC.

www.vtip.org

Mark Coburn
President

MISSION STATEMENT

To pursue excellence in technology commercialization – creating new products, businesses, and market opportunities from scientific innovation.

Goals and Objectives Achieved for FY 2012

Create an on-line disclosure process for faculty members, which will be seamlessly integrated into our technology transfer management database.

Goal achievement: Entering a new Invention Disclosure through the Virginia Tech Intellectual Properties (VTIP) Inventor Web Portal is the first step to making contact with VTIP technology licensing associates and commercializing an invention. The portal registers the invention directly in our Inteum Intellectual Property database, as an alternate pathway to the existing hard copy or email invention disclosure pathway. Testing continues on the web portal and installation of the Inteum Web Portal software is anticipated in the second quarter of FY 2013.

Continue to focus on increasing technology transfer revenues to become self-sufficient without sacrificing the ability to meet our primary goal of transferring technology to benefit society and preserve the right to practice the technology in academic settings.

Goal accomplishment: We achieved an increase in revenues in FY 2012 with some significant activity in licensing existing companies and new startup ventures based on Virginia Tech-generated inventions. OptaFuel, Enertronics, SphynKx Therapeutics, Eclipse, Virginia nanoTech, and Power Fingerprinting are all startup ventures that entered into or were formed based on options or licenses from VTIP. An example of an existing company with a product already in the market is Angiodynamics, who licensed several of our inventions related to irreversible electroporation, a technique for enhancing the surgical ablation of soft tissue with a high degree of precision.

Continue efforts to develop funding mechanisms for establishing partnerships between various types of organizations (e.g., academic, commercial, and nonprofit, and combinations thereof) where appropriate to accomplish specific technology commercialization goals, especially to fund patent costs and translational research needs. Two ideas being considered are royalty-revenue-based loans for patent costs and translational R&D and a program we call IP@VT Launch, patterned after a successful seed/venture program developed by the company Kickstarter.

Goal accomplishment: We established an evaluation relationship with Innovocracy, a crowd funding initiative focused on university technology transfer efforts, and have continued to watch their development of models for bridge funding to more fully develop our technologies for the marketplace. We established a new commercialization arrangement with IPX, a company that provides complex insights into patent portfolios to identify market opportunities which may not be immediately obvious using more traditional market-based research methods.

Statistics

170 Invention Disclosures
32 License and Option Agreements
6 Startup Companies Licensed/Optioned
83 U.S. Provisional Patent Applications
27 U.S. Patent Applications
1 U.S. Plant Variety Patent Application
12 Patent Cooperation Treaty Applications
65 Foreign Patent Applications
17 U.S. Patents Issued
6 Foreign Patents Issued
$814,005 Patent Expenses
$593,574 Patent Expenses Reimbursed
$220,431 Net Patent Expenses
$2,269,991 License Revenue

Additional Accomplishments

◆ ***Drug Discovery***: On May 1, 2012, VTIP's licensee, Protalix Biotherapeutics, received approval from the US Food and Drug and Administration (FDA) to market Elelyso™, an enzyme replacement therapy (ERT) for the genetic disorder known as Gaucher disease. Their plant-based protein production system, ProCellEx™, was invented at Virginia Tech. Elelyso™ (taliglucerase alfa) is produced by way of genetically engineered carrot cells which produce the therapeutic protein. This is the first time the FDA has approved a human therapeutic manufactured in a plant-based production system. It is also the first time a VTIP licensee has successfully developed an FDA-approved product.

◆ ***Undergraduate Research:*** VTIP provides a wide range of support to undergraduate research through internships and active outreach programs. During FY2012, VTIP hosted eight interns, five from the Howard Hughes Medical Institute-funded Scieneering program. Our interns assess new inventions by reviewing patent prior art and conducting relevant market research. They also have the opportunity to support patent prosecution and licensing negotiations. VTIP has arranged presentations by IP experts to our interns and tours of faculty inventors' labs. Additionally, VTIP outreach related to undergraduate research also includes presentations to students in the Science, Engineering and Law minor program and supporting students' commercialization assessments of VTIP technologies in the Business School's Innovation Management class.

◆ ***Center for Power Electronic Systems:*** The Center for Power Electronics Systems (CPES) is an industry consortium of more than 75 companies. VTIP supports a portfolio of more than 60 patents that are licensed to CPES Principal and Principal Plus Member companies. VTIP supported 11 new licenses to CPES members during the year, including Agilent, ELTEK, Hitachi, Mitsubishi, Murata, NEC, On, Power Integrations, Samsung, Toyota, and ZTE. VTIP also licensed the past patent portfolio to new CPES members – we have concluded two of these licenses previously and three member companies are currently evaluating such licenses. VTIP also provides training to the CPES graduate students on conducting prior art patent searches so they can look beyond the academic literature and consider industry's state of the art in their own research.

Challenges and Opportunities

Technology transfer involves many more people than just an inventor and a licensing associate. By engaging more people in the process, technology transfer must integrate more fully into the university and business communities. Technology transfer is also a continuation of the research process and is an important way researchers create impact beyond the completion of a grant or publication of a paper. Finally, innovation in technology transfer means introducing new ways of doing things in organizational, professional, communications, and financial realms. Taken together, these three facets of commercialization lead us to focus on funding for bridging the gap in technology commercialization.

The following are some broad consensus challenges where targeted efforts by VTIP may prove beneficial to commercialize specific technology areas of strength at Virginia Tech:

• Building mutual understanding and trust between industry partners and Virginia Tech researchers is necessary to promote effective communication and subsequent collaboration. Industry and academia have two diverse cultures that must reach common understanding for effective partnerships to be established.

• The costs associated with translational research are significant and may not be well identified at the outset, leading to the need for augmented funding at this stage. In addition, the lag between discovery science and its practical development is often long, with practitioners and consumers becoming increasingly impatient with the slow innovation-to-market cycle.

• Key hurdles in commercializing products include regulatory pathways, intellectual property issues, obtaining adequate funding – particularly in early and mid-phase – and the cost to get to market versus a realistic market size.

VTIP is playing an important and pivotal role in facilitating technology transfer and commercialization of basic research by addressing each of these challenges.

GOALS AND OBJECTIVES

for FY 2013

Continue to focus on increasing technology transfer revenues *for VTIP to become self-sufficient without sacrificing the ability to meet our primary goal of transferring technology to benefit society and preserve the right to practice the technology in academic settings.*

Provide access for faculty members and administrators to selected areas of our technology transfer database*, Inteum C/S© will provide reports and insights into the pursuit and management of technology transfer activities and statistics at the individual investigator and department/college levels.*

Contribute to efforts in the regional community to increase regional outreach and entrepreneurship *with the goal of being able to license more of our technologies to faculty and/or student startup ventures and existing business in the region.*