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TEDCO Awards Nearly \$500,000 to Local Researchers Through Its University Technology Development Fund and TechStart Programs

Five startup companies launched as a result of TEDCO funding awards: BOSS Medical, cervocheck, Clear Guide Medical, LifeLong Technologies and NexImmune

COLUMBIA, Md. (Dec. 5, 2011) – The Maryland Technology Development Corporation (TEDCO) announced today that it has awarded 12 Maryland researchers a total of \$485,000 through its University Technology Development Fund (UTDF) and TechStart programs. Researchers from the Johns Hopkins Applied Physics Laboratory (APL), Johns Hopkins University (JHU), Salisbury University and Towson University received up to \$50,000 each in UTDF funding. Teams from the University of Maryland, Baltimore (UMB); University of Maryland College Park (UMD) and JHU each received up to \$15,000 in funding from TEDCO’s TechStart program. Five startup companies were launched as a result of these funding awards: BOSS Medical, CervoCheck, Clear Guide Medical, Lifelong Technologies and NexImmune.

The aim of the UTDF program is to help researchers develop and assess the commercial viability of new technological inventions, test prototypes and optimize principle research designs. Since the inception of the UTDF in 2001, 95 projects have been completed and 43 have been licensed or optioned to private companies, 35 of which are located in Maryland. Of these licensees, 29 were startup companies in the state, 13 received follow-on funding through TEDCO’s Maryland Technology Transfer and Commercialization Fund program and seven through TEDCO’s TechStart program.

The TechStart program provides funding to university and federal lab-based teams that include an inventor who is willing to assist in evaluating the feasibility of a startup, an experienced entrepreneur who will provide business guidance and a technology transfer manager. To receive funding, teams must submit a proposal to TEDCO for further evaluation. Recipients receive a maximum of \$15,000 through TechStart, which defrays the costs of evaluating the probability of the startup’s opportunity. All Maryland university and federal lab teams are eligible for funding. Since the inception of TechStart in 2007, 29 projects have completed, resulting in 20 startup companies in the state.

“The University Technology Development Fund and the TechStart program are incredible resources that give Maryland an advantage in advancing and commercializing cutting-edge technologies from our universities and federal labs,” said Rob Rosenbaum, president and executive director of TEDCO. “TEDCO is extremely proud of the fact that five companies were started as a result of this funding – a true example of economic development in action and a testament to the sound investment in early stage innovation.”

UTDF Awards:

From APL, the recipient is:

- **Andrew F. Mason**, Ph.D., a senior staff member, has been awarded \$49,000 to develop a technology that uses chitosan, a byproduct of chitin, to sequester phosphate ions that cause harmful algal blooms in marine environments. Phosphate is a primary component of both agricultural runoff and storm water due to its use in

fertilizer and its presence in animal waste. Dr. Mason and colleagues have data that shows that chitosan, which can be made from the natural waste product of shrimp shells, can successfully sequester aqueous phosphate ions.

From JHU, the recipients are:

- **Robert H. Allen**, Ph.D., P.E., associate research professor of gynecology and obstetrics, who received \$50,000 to develop a technology that allows obstetricians to more accurately diagnose early preterm labor and prescribe interventions to prolong the pregnancy and to improve fetal development. This device, by bypassing the maternal abdomen and measuring contractions in the cervix and vagina, enables more accurate diagnoses. This technology has become the core of a startup company, *CervoCheck, LLC*.
- **Emad Bactor**, Ph.D., assistant professor of radiology, was awarded \$50,000 to further develop a needle tracking and intervention guidance device which uses ultrasound imaging. This allows needle-guided interventions to be done without the need for expensive, cumbersome external tracking devices that are currently used. This device will also allow the physician or ultrasound expert to find small or deep tumors which cannot yet be easily spotted by ultrasound. This technology has become the core of a startup company, *Clear Guide Medical, LLC*.
- **A. Jay Khanna**, M.D., associate professor of orthopedic surgery and biomedical engineering, was awarded \$50,000 to develop a minimally-invasive bone tissue harvesting device with a softer drill. Bone grafting is used to help fuse bones and for healing in spinal fusions, which are widely used surgical procedures that increase the structural support of the spine. Dr. Khanna's device allows for the collection of more bone tissue, a safer autograft, reduction of pain and better grafting. This technology is the core of a startup company, *BOSS Medical, LLC*.
- **Aleksander Popel**, Ph.D., professor of biomedical engineering, was awarded \$50,000 to continue developing a therapeutic technology known as a mimetic peptide to treat cancer. These peptides mimic larger antibodies or proteins and show promise in inhibiting metastatic breast cancer and breast cancer that has not been responding to current treatments. The peptides are synthetic and have substitutions in them to make them more active. The advantages of using peptides are that they are smaller, more specific and more cost-effective to produce than antibodies; they are less toxic than other currently-available cancer treatments and they do not cause immune reactions. This particular peptide also has an amino acid substitution to make it more stable and less likely to be broken down by proteases.
- **Brendan Canning**, Ph.D., associate professor in the Department of Medicine, has been awarded \$50,000 to further develop a treatment for coughing. A new cough drug hasn't been introduced in half a century and the medicines currently available are minimally effective and addictive. Dr. Canning has discovered cough receptors that play an essential role in regulating the cough reflex and a group of compounds that are more effective in selectively targeting these receptors.
- **Clifford Weiss**, M.D., assistant professor of radiology, was awarded \$50,000 to further develop a device that makes dialysis more effective. Dr. Weiss's team has designed a device to access naturally high blood flows in the leg, as opposed to the artificially created ones in the arm that cause stenosis. This subcutaneous device provides two ports for access to the femoral vein and a third port for controlling a valve which closes access to vein when the patient is not in dialysis. The valve also allows the tubing to be cleaned.

From Salisbury University, the recipient is:

- **Mark Holland**, Ph.D., professor and chair of the biology department, was awarded \$50,000 to develop a technology that uses specific bacteria to stimulate the germination and root growth of seagrass seedlings. Dr. Holland has found that certain bacteria, pink pigmented facultative methyotroph, stimulate germination and root growth of land plants. He will use the bacterization technology to improve the germination of eelgrass seedlings, which can improve the health of coastal fisheries.

From Towson University, the recipient is:

- **Tim Brooks**, associate director of software development, was awarded \$50,000 to further develop an auditory Completely Automatic Public Turing test to tell Computers and Humans Apart (CAPTCHA). The most commonly used CAPTCHAs present several alpha-numeric characters that have been distorted and ask users to type the correct characters to gain access to a website. Because visually impaired people have difficulty using these CAPTCHAs, the Towson team has developed a reCAPTCHA technology that depends on identifying a series of sounds such as bells.

TechStart Awards:

From UMB, the recipient is:

- **Angelia Crawford**, entrepreneur and graduate of the ACTiVATE program; Dr. Robert O'Toole, M.D., assistant professor of Orthopedics; and **Dr. Nancy Cowger**, Office of Technology Licensing at UMB, were awarded \$8,000 to develop the Step Activity Monitor (SAM), a walking aid that provides quality data about patients' physical activity to physicians. This important information can help doctors prevent future hospitalizations and death and provide better care to patients. The team will use the funding for a freedom to operate search. *LifeLong Technologies, LLC* was formed around the technology.

From UMD, the recipient is:

- **Ichiro Takeuchi**, Ph.D., professor of engineering; **Sherry Xie**, entrepreneur; and **Gayatri Varma, Ph.D.**, director of the Office of Commercialization, were awarded \$13,000 to develop a thermoelastic cooling technology invented by Dr. Takeuchi. Thermoelastic cooling uses a solid-solid phase transformation to absorb and release heat, which uses less energy and doesn't require a hazardous coolant. This technology won first place in the Invention of the Year 2010 for physical science. The team will use the funding to determine freedom to operate, research marketing niche and investigate potential competitors.

From JHU, the recipient is:

- **Mathias Oelke**, Ph.D., assistant professor of pathology; **Kenneth Carter, Ph.D.**, entrepreneur; and **Daniel Potvin, Ph.D.**, senior licensing associate, were awarded \$15,000 to develop a technology that will destroy tumor cells. Dr. Oelke has produced an artificial antigen cell that mimics human immune systems' dendritic cells. Antigens on the surface of dendritic cells stimulate natural killer T-cells (NKT cells) to destroy tumors. The platform technology developed by this team is an easy-to-assemble system in which different immunological signals can be attached to a bead or smaller quantum dot and used to activate NKT cells. The technology can be used to stimulate cells outside the body in culture and also can be injected into patients. The technology is being developed to treat melanoma specifically, but can be applied broadly. The team will use the funding to determine freedom to operate. A startup company was formed around this technology, *NexImmune, Inc.*

The Maryland Technology Development Corporation (TEDCO), an independent entity, was established by the Maryland General Assembly in 1998 to facilitate the creation of businesses and foster their growth in all regions of the State. TEDCO's role is to be Maryland's leading source of funding for seed capital and entrepreneurial business assistance for the development, transfer and commercialization of technology. TEDCO connects emerging technology companies with federal laboratories, research universities, business incubators and specialized technical assistance. TEDCO was recognized by Entrepreneur Magazine for being the most active seed/early-stage investor in the nation for five consecutive years from 2003-2008 (the last year of the survey) and is a recipient of the national Excellence in Technology-Based Economic Development award from the State Science and Technology Institute (SSTI) for the Maryland Technology Transfer and Commercialization Fund (MTTCF) program. For more information on TEDCO and its programs and resources, visit www.MarylandTEDCO.org.