News

Bob Tranquillo’s Pediatric Heart Valve Research Featured on KARE11
The pediatric heart valve development by IEM Member Dr. Robert T. Tranquillo, Professor and Head of the Department of Biomedical Engineering, was recently featured on KARE 11. Dr. Tranquillo is using decellularized tissue tubes grown in the lab from adult skin cells to develop a pediatric heart valve that will grow as the child does, eliminating the need for multiple surgeries, as children outgrow currently-available heart valves. “Our goal is to create an option that requires only one surgery,” says Dr. Tranquillo, who has tested the valve in animals and plans to soon approach the FDA about progressing to a human clinical trial for a replacement of the artery in which the valve resides.

U. of M. Researchers Work on Heart Valve for Kids

Boston Scientific’s Randy Schiestl Elected AIMBE Fellow
IEM Industrial Advisory Board Member Randy Schiestl, Vice President of R&D, Global Technology at Boston Scientific, has been elected to the American Institute for Medical and Biological Engineering (AIMBE) College of Fellows, due to his “important contributions to the field of engineering.” AIMBE Fellows are nominated by existing Fellows, peer-reviewed by the College’s Selection Committee, then voted-on by the entire College. The AIMBE College of Fellows “is comprised of around 1,500 individuals who have made significant contributions to the medical and biological engineering (MBE) community in academia, industry, government, and education that have transformed the world” and represents the top 2% of medical and biological engineering professionals. Randy stated, “It is truly an honor to be recognized as an engineering professional and to be included among those recognized by the AIMBE College of Fellows.”

Pediatric Device Innovation Consortium Profiled by Star Tribune
The Pediatric Device Innovation Consortium (PDIC), founded by IEM Member Dr. Gwenyth Fischer, Assistant Professor of Pediatrics, was profiled in the Star Tribune. The PDIC helps to shepherd the development of pediatric devices from their inception to their adoption by industry through grants and guidance to clear the regulatory, reimbursement and other hurdles that typically keep these devices from reaching the patients who need them. “What we’d like to do is take products as far as possible with university help, so that when they exit the university system into industry, they are much more likely to succeed,” says Dr. Fischer. The University of Minnesota’s Office of Discovery and Translation is providing approximately $250,000 in 2016 to support the PDIC’s programs, including planned access to a pediatric device incubator and a program to solicit ideas from parents, in addition to engineers and physicians. The incubation will be done through collaboration with DesignWise Medical, founded by Bradley Slaker, current Innovation Fellow of the IEM-Affiliated Medical Devices Center.

University of Minnesota Volunteer Group Looks to Kick Start Development of Medical Devices for Kids

Startup Evolving from Medical Devices Center’s Innovation Fellows Raises $1.9 Million
A medical device startup that evolved from the research and development efforts of Innovation Fellows at the University of Minnesota’s IEM-Affiliated Medical Devices Center (MDC) has raised $1.9 Million in a round of equity financing. As reported by the Minneapolis/St. Paul Business News, Andarta Medical is developing a device that reduces the amount of time patients need to be on ventilators. The Innovation Fellows who invented the technology include James Krocak, Dr. Jesus A. Cabrera and Dr. John Ballard, members of the classes of 2013 and 2014. Dr. Cabrera says, “The rapid maturation and evolution of Andarta Medical demonstrates that the MDC’s Innovation Fellowship plays a strong role in the MedTech ecosystem in Minnesota.”
Medical Devices Center’s Virtual Reality Research Improves Medical Device Design and Physician Training

The 3D Virtual Prototyping Lab housed at the IEM-affiliated Medical Devices Center is making strong contributions to medical device design and has the potential to do the same for physician training. As profiled by the publication STAT, university researchers are developing interactive virtual reality design tools that combine scanned anatomy with supercomputer simulations. “We can say, ‘Let’s bring up a heart with calcifications,’ and design a pacemaker or a valve for it,” says Arthur Erdman, IEM Medical Device Theme Co-Chair and Director of the Medical Devices Center. IEM Member Dan Keefe, Associate Professor of Computer Science and Engineering and Director of the Interactive Visualization Lab, notes that VR can enable a whole new generation of user-friendly design tools for simulation-based engineering.

Virtual Reality Medical Device Testing

Enhanced Neuron Imaging Technique Developed by Karen Mesce

IEM Member Dr. Karen A. Mesce, Professor of Neuroscience and Entomology, has developed a novel technique for the imaging of silver or gold-labeled tissue samples in a collaborative effort with colleagues at Agnes Scott College. As reported in the journal eLIFE, the new technique combines spectral confocal microscopy with the metal-staining of neurons. This results in neuronal tissue and cell specimens that are easily imaged in 3D and will allow for the re-imaging of older metal-impregnated samples that have been archived, even as imaging techniques continue to improve in the future. “The progression or stability of cancer or other disease could therefore be charted with accuracy over long periods of time,” says Dr. Mesce.

Metal Labels Produce 3D Images of Neurons

James Cloyd Named CTSI Mentor of the Year

IEM Member Dr. James Cloyd, Professor of Experimental and Clinical Pharmacology in the College of Pharmacy and Director of the Center for Orphan Drug Research, has been named CTSI Mentor of the year. The honor is driven by mentees who nominate their research mentors. Nominations are reviewed by a committee of senior faculty who have extensive experience with research mentoring. The mentees’ nominations noted Dr. Cloyd’s “multi-disciplinary and innovative, question-based approach, infectious passion, open-door policy, and belief in his mentees’ abilities.” Dr. Cloyd was honored at CTSI’s Annual Scholar Poster Session and Reception on January 20th at the McNamara Alumni Center.

Valerie Pierre Developing Urinary Tract Infection Diagnostic Tool

IEM Member Dr. Valerie C. Pierre, Associate Professor of Chemistry, is developing a new tool for fast, affordable diagnoses of urinary tract infections (UTIs), which affect nearly half of all women during their lives. Urine cultures have been the most accurate method to diagnose UTI’s, but because they typically take 48 to 72 hours, and more urgent treatment is needed, the diagnoses are often based upon symptoms, which are not as reliable. Dr. Pierre’s method aims to make a more accurate rapid diagnosis and assess the bacteria’s antibiotic resistance to determine the best course of treatment. CTSI provided critical support to Dr. Pierre, including funding, guidance and the facilitation of her collaboration with the Mayo Clinic. A prototype of the tool is being tested on clinical samples and long-term plans include submitting it to the FDA for approval.

How CTSI is Helping One University Investigator Convert Her Idea for Real-World Tool for Diagnosing Infections

Announcements

Registration Open for MN-REACH Bootcamp on February 3rd

This is a one-day immersion into Lean Innovation principles and commercialization processes as applied to the commercialization of medical innovations. Researchers planning to submit MN-REACH pre-proposals are especially encouraged to participate. Details and registration are at the following link: TCB X001 - Medical Technology Commercialization Bootcamp

Call for Submissions-Pediatric Medical Device Breakthrough Collaborative

April 12, 2016 (2pm - 6 pm) Heritage Gallery, McNamara Alumni Center

The MN Pediatric Device Innovation Consortium (PDIC) invites physicians, inventors, and the medical device industry to learn about innovative ways to collaborate. This event is intended to foster strong academic-industry relationships driven toward the creation of new pediatric medical devices. The PDIC is seeking applicants interested in presenting pediatric medical device inventions or identified areas of unmet need that may be addressed by the development of a new device.
Presentations are limited to 5 minutes each. For more information, please visit 2016 Breakthrough Collaborative. Invitation and agenda to follow. To apply, Click here to submit an application!