News

Jakub Tolar Appointed as Dean of the Medical School
Dr. Jakub Tolar has been appointed as the new Dean of the University of Minnesota Medical School, pending Board of Regents approval. Dr. Tolar, who is a Professor of Pediatrics, Director of the Stem Cell Institute and IEM Member, and who had been serving as Executive Vice Dean of the Medical School, has also been appointed as Interim Vice President for the Health Sciences. In a statement, University President Eric W. Kaler described Dr. Tolar as “an internationally recognized leader in regenerative medicine who has been a faculty member of the University of Minnesota Medical School for 25 years. A dedicated educator, he spans the fields of basic science and clinical medicine and is revered for his dedication to improving human health. His collaborative and engaging approach in working with elected officials, citizens, health care partners, and colleagues within the institution is impressive.” Dr. Tolar will replace Dr. Brooks Jackson, who is leaving the University of Minnesota to become Vice President for Medical Affairs and Dean of the Roy J. and Lucille A. Carver College of Medicine at the University of Iowa.

University of Minnesota Names New Medical School Dean

Registration Open for IEM Annual Conference & Retreat, November 6th; New Format to Focus on Research Funding & Collaboration
Registration is open for the 6th Annual Institute for Engineering in Medicine (IEM) Conference & Retreat, to be held from 11:30 A.M. to 5:00 P.M. on Monday, November 6th at the McNamara Alumni Center. This year’s event will serve as an exceptional opportunity for IEM Member faculty to learn about a variety of research funding sources and methods, from senior faculty, University funding and commercialization services and from industry, including leading medical technology companies. In addition, it will serve as a unique, singular gathering point for a variety of faculty with synergistic research interests that bring an engineering approach to medical problems. Immediately following a networking lunch with Plenary Keynote Talks, will be an afternoon session with panel discussions on industry collaboration, grant funding and entrepreneurship, and Collaborative Incubation “Genius Bars,” at which faculty can meet to discuss the pursuit of research opportunities in IEM thematic areas and learn about the resources of IEM-affiliated centers. From mid-afternoon, there will be a poster/networking session highlighting the research of IEM faculty members and their groups.

David Odde Named Associate Director for Development of IEM
Dr. David J. Odde has been named Associate Director for Development of the Institute for Engineering in Medicine (IEM). Dr. Odde is a professor of biomedical engineering at the University of Minnesota who studies the mechanics of cell division and migration. Trained academically as a chemical engineer, Dr. Odde joined the newly created Department of Biomedical Engineering at the University of Minnesota in 1999. In his research, Dr. Odde’s group builds computer models of cellular and molecular self-assembly and force-generation-dissipation dynamics, and tests the models experimentally using digital microscopic imaging of cells ex vivo and in engineered microenvironments. Current applications include the modeling of chemotherapeutic effects on cell division, molecular mechanisms of neurodegeneration, and migration of cancer cells through complex microenvironments such as the brain. Ultimately, his group seeks to use the models to perform virtual screens of potential therapeutic strategies. Dr. Odde is an elected Fellow of the American Institute for Medical and Biological Engineering (AIMBE) and of the Biomedical Engineering Society (BMES), and is the contact Principal Investigator for the Physical Sciences in Oncology Center at the University of Minnesota, which is focused on modeling the mechanics of cancer cell migration in biologically relevant contexts.

Dr. David J. Odde, Department of Biomedical Engineering
IEM Members & Colleagues Awarded $2.5 Million NIH R01 Grant for Nanowarming of Frozen Organs for Transplant

IEM Interim Director Dr. John C. Bischof, Professor of Mechanical and Biomedical Engineering, Dr. Erik Finger, Assistant Professor in the Department of Surgery, and their colleagues have been awarded a 4-year, $2.5 Million NIH R01 grant for research, entitled “Breakthrough Tissue and Organ Preservation and Transplantation using Scaled-Up Nanowarming Technology,” to study nano warming in blood vessels and hearts. This multidisciplinary collaborative effort will build upon research in which Dr. Bischof and his colleagues succeeded in demonstrating a method to safely warm VITRIFIED tissue, a major initial step toward the preservation of large tissues and organs. Drs. Bischof and Finger are collaborating on this research with Dr. Yoed Rabin of the Biothermal Technology Laboratory at Carnegie Mellon University. Other members of the research team include IEM Executive Committee Member Dr. Christy L. Haynes, Professor and Vice Chair, Department of Chemistry; Dr. Alena Talkachova, Associate Professor of Biomedical Engineering; and Dr. Michael Garwood, Professor of Radiology-CMRR.

NIH Award Announcement for Breakthrough Tissue and Organ Preservation and Transplantation Using Scaled-Up Nanowarming Technology

IEM Members Demonstrate Novel Approach to Identifying Dormant Cancer Cells and Keeping Them Quiescent

A research team consisting of three IEM Members has investigated and demonstrated a unique approach to identifying dormant cancer cells by encapsulating them in very stiff 3D gels so that they remain quiescent. The research was published in the journal Technology, and authored by IEM Member Dr. Alptekin Aksan, Professor of Mechanical Engineering. “We know that certain metastases are caused by dormant cells, which are currently impossible to target,” says Dr. Aksan. “If we can isolate and study them, then we can develop ways to destroy them.” Dr. Aksan says that his team’s ultimate goal is to apply the technology in a clinical environment where it can be tested in patients. Also on the team were IEM Members Dr. Samira M. Azarin, Assistant Professor of Chemical Engineering and Materials Science and Dr. Emil Lou, Assistant Professor of Medicine, Division of Hematology, Oncology and Transplantation.

Novel Platform for Investigating Quiescence in Dormant Capable Cancer Cells

David Largaespada Renewed as American Cancer Society Research Professor

IEM Member Dr. David A. Largaespada, Professor in the Department of Pediatrics, and the Department of Genetics, Cell Biology and Development, has been renewed as an American Cancer Society Research Professor for a 5-year term. Dr. Largaespada, also a Masonic Cancer Center researcher, has focused his area of research on “Functional Genomics of Cancer Progression.” The American Cancer Society Research Professor and Clinical Research Professor Awards are the most prestigious research grants made by the national program, and the title of American Cancer Society Professor can be used throughout the remainder of the scientist’s career. This is part of more than $4.6 Billion of support that the American Cancer Society has provided since 1946 to fund the training and research of health professionals in their efforts to prevent, detect and treat cancer patients, and also to support cancer survivors and their family members.

American Cancer Society Research and Clinical Research Professors

Kelvin Lim Named to Scientific Council of Brain and Behavior Research Foundation

IEM Executive Committee Member Dr. Kelvin Lim, Professor of Psychiatry CMRR, has been named to the Scientific Council of the Brain and Behavior Research Foundation. “I am honored to join the Foundation’s Scientific Council,” says Dr. Lim. “The Foundation serves a critical role in launching new investigators and catalyzing new research ideas. I know this first hand; my first grant was a Young Investigator Award, which was critical to launching my research career. I am delighted to be able to directly support the mission of the Foundation.” The Council members review approximately 1,200 grant applications, annually, that are submitted to the Brain and Behavior Research Foundation, which is the largest non-governmental funding entity for the support of mental health research.

Brain and Behavior Research Foundation Adds 12 New Members to Scientific Council

IEM Members Part of CMRR Research Team Awarded Grant for Deep Brain Stimulation

IEM Members Dr. Walter C. Low, Professor of Neurosurgery, the Masonic Cancer Center, and the Stem Cell Institute, Dr. Matthew D. Johnson, Associate Professor of Biomedical Engineering and Dr. Gregory F. Molnar, Associate Professor in the Department of Neurology, are among members of a Center for Magnetic Resonance Research (CMRR) team that was awarded an NIH Brain Initiative U01 Grant for the development of safe and efficient paradigms for Deep Brain Stimulation (DBS). The research, “New Technologies and Novel Approaches for Large-Scale Recording and Modulation in the Nervous System (U01),” is being funded with a 3-year, $3.5 million grant and includes teams of researchers at Columbia University and the A.I. Virtanen Institute at the University of Eastern Finland, in addition to the University of Minnesota. “Our work has the potential to revolutionize neuromodulation strategies by increasing the precision with which the technology can target specific pathways in the brain,” says Principal Investigator Dr. Shalom Michaeli, Associate Professor of Radiology-CMRR. Other University of Minnesota team members are Dr. Silvia Mangia, Associate Professor of Radiology-CMRR; Dr. Melissa Terpstra, Associate Professor of Radiology-CMRR; Lauri J. Lehto, a Research Associate in Radiology-CMRR; and Dr. Djudat S. Idiyatullin, Assistant Professor of Radiology-CMRR. Team members at the University of Eastern Finland include Dr. Olli Grohn and Dr. Heikki Tanila, and members from Columbia University include Dr. Ken Shepard and Adrian Bradd.

UMN Medical School’s Center for Magnetic Resonance Research (CMRR) Receives NIH U01 Grant
Drug, with Key Ingredient Developed by Joseph Metzger, is being used to Treat Boys with Muscular Dystrophy

The active ingredient of a drug being used to treat Duchenne muscular dystrophy, a form of the disease that is found only in boys and young men, was developed by IEM Member Dr. Joseph M. Metzger, Professor, Department Head and Chair, Department of Integrative Biology and Physiology (IBP). Dr. Metzger describes the ingredient, P-188 NF, as a “molecular Band-Aid,” that locates, then attaches to microscopic tears/instabilities in muscle. The drug, Carmeseal-MD, manufactured by Phrixus Pharmaceuticals, Inc., is being tested in two patients with Duchenne muscular dystrophy outside of the U.S., and a trial is planned at Cincinnati Children’s hospital in early 2018. Carmeseal-MD has already been prescribed outside of the U.S. to young male patients suffering from both cardiac and respiratory disease. As reported in a press release, Duchenne muscular dystrophy, for which no treatment has been fully approved, affects approximately 15,000 to 20,000 young males, annually, in the United States and Europe.

U. of M. Startups Milestone in Drug Therapy for Boys with Duchenne Muscular Dystrophy

IEM Members Part of Team that is Runner-Up in RETOUCH Challenge

A team that included IEM Members Dr. Keshab K. Parhi, Professor in the Department of Electrical and Computer Engineering, and Dr. Dara D. Koookezanani, Associate Professor in the Department of Ophthalmology and Visual Neuroscience, was the runner-up in the RETOUCH Challenge. This half-day competition was held in conjunction with the 4th MICCAI Workshop on Ophthalmic Medical Image Analysis (OMIA), in Quebec City, Canada, as a satellite event of the MICCAI 2017. The team also included Mr. Abdolreza Rashno, a former Pre-doctoral Visitor in Electrical & Computer Engineering in Dr. Parhi’s group, currently at Isfahan University of Technology, Isfahan, Iran. Dr. Parhi says that retinal pathologies, such as accumulated fluid, can be imaged using spectral domain optical coherence tomography (SD-OCT). The goal of the challenge was to compare automated algorithms that are able to detect and segment various types of fluids on a common dataset of optical coherence tomography (OCT) volumes representing different retinal diseases, acquired with devices from different manufacturers. The three types of fluids present in OCT images that were segmented include Intraretinal fluid (IRF), Subretinal fluid (SRF), and Pigment Epithelial Detachment (PED).

University Team is Runner-Up at Retinal Oct Fluid Challenge | IEEE Xplore | IEEE PLOS ONE

Announcements

2018 DMD Call for Papers - Submission Deadline Nov. 1, 2017

The University of Minnesota Design of Medical Devices Conference seeks original papers that demonstrate new technologies and applications in the field of medical device design. Submissions from academic and industry researchers, clinicians and practitioners are encouraged. Papers should present an unbiased description of an experiment, product or business method related to medical devices. Detailed author instructions can be found on the Call for Papers webpage.

Authors of accepted papers will present their paper as a poster during one of the conferences scientific poster sessions AND as a brief 5-minute, 3-slide oral presentation. More information will be provided soon. Submit Today!

New Requests for Information (RFIs): Device-based Clinical Neuromodulation Studies

Our team has released two Request-For-Information (RFI) calls soliciting public input on device-based clinical neuromodulation studies, specifically involving peripheral or spinal cord neuromodulation of organ function. One RFI, NOT-RM-17-023, seeks input from surgeons, interventionalists, and other relevant clinicians. The other, NOT-RM-17-015, targets industry stakeholders. The overall goal of these RFIs is to obtain strategic input on ways to improve both the therapeutic potential and scientific impact of clinical studies involving neuromodulation devices. Clinician perspectives are needed on various topics such as the state of surgical planning and access tools, clinical considerations related to device design and functionality, and the potential use of clinical settings to collect physiology data for research. Input from industry scientists and engineers is sought on ways to establish effective public-private partnerships around clinical studies, to pursue new therapeutic opportunities using existing technology and to explore the use of devices with expanded research capabilities to maximize data yield from clinical device-based studies.

As explained in the RFIs, responses can be submitted via email, through teleconference meetings with the SPARC team requested here, or through voicemail messages left at the provided telephone number. Responses must be communicated by December 1, 2017.

NIH Policy: Early Stage and Early Established Investigators (ESI/EEI)

NIH recently released the new Next Generation Researchers policy (NOT-OD17-101) intended to provide opportunities for earlier research independence while enhancing workforce diversity. The policy specifies the requirements for Early Stage Investigator (ESI) and Early Established Investigator (EEI) status. It is important to note that a PD/PI can be an Other Transaction (OT2 and OT3) awardee and still be considered an ESI similar to when receiving these exempted grants and awards. Please view the policy FAQs for additional information and consider applying for SPARC funding in the future.