News

Clifford Steer, M.D., Accepts New Leadership Role as Associate Dean for Faculty Affairs

Dr. Clifford Steer, M.D., Professor of Medicine and IEM Member, has accepted a new leadership role as Associate Dean for Faculty Affairs at the Medical School, a position he will begin on December 1st. Dr. Steer’s time at the University of Minnesota’s Medical School began more than 40 years ago, when he was an MD student and then a resident of Internal Medicine. After then spending 14 years at the NIH, he returned to the Medical School, where he has served as a tenured professor and in a number of committees. “As a physician and researcher, with ties throughout the school, Cliff can relate to our faculty on many levels. He’s going to be an outstanding ally for the faculty as we begin to meet our goals with mentorship, academic scholarship, P&T program and tenure track, and diversity,” said Dr. Brooks Jackson, Dean of Medical School and VP of Health Sciences, in his announcement of this new position.

Clifford Steer, M.D., Named Associate Dean of Faculty Affairs

IEM Industrial Fellow Collaborating with University of Minnesota & Mayo Clinic on Epilepsy Seizure Prevention Device

IEM Industrial Fellow Dr. Timothy Denison of Medtronic is collaborating with researchers at the Mayo Clinic, University of Minnesota, and University of Pennsylvania to develop a device that would predict, then prevent impending epileptic seizures, as reported in the publication “Fierce Medical Devices.” The development is being funded by a $6.8 million 5 year grant from the NIH led by Dr. Greg Worrell, Professor of Neurology at the Mayo Clinic, as part of the Obama Administration’s Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative. Dr. Worrell, who discussed the technology at an IEM Seminar in March, says that “The new technology, coupled with the big data analysis, will also be used for effective brain stimulation to prevent seizures before they ever occur.” Drs. Worrell and Denison are both affiliate members of the Center for Neuroengineering, which is an affiliate center of IEM.

Mayo Clinic, Medtronic researchers get $6.8M from NIH for epileptic smart device

Medical School’s Medical Discovery Teams Led by IEM Members

IEM Members Dr. Timothy J. Ebner, Professor and Head, Department of Neuroscience and Dr. Kamil Ugurbil, Professor of Radiology and Director of the Center for Magnetic Resonance Research (CMRR) are leading two of the four University of Minnesota Medical Discovery Teams (MDT). As reported in the “Medical School Blog,” these teams were established and funded by the Minnesota State Legislature “to
recruit faculty considered to be national leaders in their fields to lead teams focused on solving health issues important to Minnesota and the nation,” according to Medical School Dean Brooks Jackson. Dr. Ebner will lead the “Addiction” faculty search team and Dr. Ugurbil will lead the search team entitled: “Imaging Across Multiple Scales of Neuronal Organization in the Brain: Circuit Based Approaches to Neuropsychiatric Disorders.”

Medical Discovery Teams Update

Michael McAlpine Applies 3-D Printing to Nerve Regeneration

Dr. Michael McAlpine, Benjamin Mayhugh Associate Professor of Mechanical Engineering and IEM Member, is working on ways to regenerate complex nerve injuries with 3-D printed scaffolding to serve as a conduit between the ends of a broken nerve network, as reported in M.I.T.’s “Technology Review.” The impact of this type of nerve regeneration is potentially significant as more than 200,000 procedures to repair nerves are performed annually in the U.S., and the approach can eliminate some of the issues associated with the current practice of harvesting and using nerve tissue from other parts of the body. Dr. McAlpine recently came to the University of Minnesota from Princeton University and presented aspects of this research during an IEM Seminar in September. He says that, as he continues his research, he would like to identify a biodegradable material that could be used for the scaffolding so that it can dissolve in the body after the nerve has been regenerated. This advance will set the stage for future clinical trials in humans.

3-D Printing’s Next Act Nerve Regeneration

Visible Heart Lab Serving as Research Site for Lung Perfusion System Aimed at Increasing Lung Transplant Availability

The University of Minnesota’s Visible Heart Lab (VHL), directed by Dr. Paul A. Iaizzo, Professor of Surgery and IEM Associate Director for Education and Outreach, is the sole research site for the testing of the TransMedics OSC™ Portable Lung Perfusion System, which will help to make more lungs available for transplantation. “With only 20% of all lung offers currently used for transplant and a growing need for quality donors, our research with Ex vivo lung preservation (EVLP) is a critical step toward addressing this shortage,” says Dr. Gabriel Loor, M.D., Assistant Professor of Surgery, who is performing this research with Dr. Iaizzo.

The OSC system preserves lungs by continuously pumping blood through them as they are being transported from the donor to the recipient. This practice increases the time available between harvest and transplant as compared to the current practice of placing the harvested lungs on ice. This added time would increase the number of lungs available for transplants. The Visible Heart Lab is uniquely capable of performing the studies needed to evaluate the OSC system’s various aspects, and the resulting research is described in two journal articles that are currently under review, one in the “Journal of Thoracic and Cardiac Surgery” and the other in the “Journal of Heart and Lung Transplantation.” TransMedics expects its OSC system to soon enter clinical trials in the U.S., although it is already available for commercial use in Europe and Australia.

Transmedics OCS Portable Lung Perfusion System

New Cancer Immunotherapy Company Established to Commercialize Technology Developed by Carston Wagner

Tychon Biosciences, a new biotechnology company, has started to commercialize an adaptive immunotherapy developed by IEM Member Dr. Carston Wagner, Professor and Endowed Chair of Medicinal Chemistry and Director of the Chemical Biology Initiative. Dr. Wagner says the treatment can be used against a variety of cancers including those of the prostate, breast, pancreas, lung and brain, in addition to some types of leukemia. Unlike other immunotherapies in which cells are genetically modified, Dr.
Wagner’s technology uses a protein design – a chemical and biological approach of engineering the cells, which allows the treatment to be delivered to the patient in an “off-the-shelf” fashion, so that it can be given “much more readily.” The treatment is currently in pre-clinical studies and is on track to proceed to a Phase 1 human clinical trial within two years.

Invenshure Launches Tychon Biosciences

Announcements

APRIL 11-14, 2016: Design of Medical Devices Conference (The Commons Hotel & McNamara Alumni Center, Minneapolis, MN)

www.dmd.umn.edu

The University of Minnesota’s Medical Devices Center (part of the Institute for Engineering in Medicine), the College of Science and Engineering, and the Department of Mechanical Engineering presents the 15th Annual Design of Medical Devices Conference, April 11-14, 2016. The world’s largest medical device conference will be held at The Commons Hotel & McNamara Alumni Center, located on the University of Minnesota Twin Cities Campus. The DMD Conference brings together medical device designers, manufacturers, researchers, and representatives from academia and the public sector.

Conference Goals
- Provide a national forum to bring together world-class medical device designers, researchers, manufacturers, and the public sector to share perspectives and innovations in medical device design,
- Showcase the University of Minnesota as a leader in the medical device community, and
- Raise funds from corporate sponsorship to support medical device education at the University of Minnesota.

Call for Papers
The University of Minnesota’s Design of Medical Devices Conference seeks original two-page 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. The paper 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 be invited to present at the conference scientific poster session on Wednesday, April 13, 2016. Accepted papers will also be published as a two-page Technical Brief in the ASME Journal of Medical Devices. Conference registration and participation in the conference poster session is required for publication of the paper.

Two-page technical briefs are due Monday, November 9, 2015.

Registration
Registration opens January 1, 2016! Early Bird Deadline is March 13. Registration information can be found at http://www.dmd.umn.edu/registration.html.

For more information, please visit www.dmd.umn.edu or contact dmdconf@umn.edu.
Registration Open for Advanced Cardiac Physiology and Anatomy Course, January 4th–8th

The Advanced Cardiac Physiology and Anatomy course will be offered again in 2016 (January 4-8) on the Minneapolis East Bank campus. This course is specially designed for biomedical engineers, and includes both basic science and clinical aspects. Unique features of the course include lectures on basic cardiac anatomy, physiology, and associated clinical topics, as well as daily laboratory experiences where small groups of students are guided through detailed dissections of the human cadaver chest wall, thoracic cavity, and heart. Live demonstrations are provided throughout the course. For more information and to register, visit the course website:
http://physiology.med.umn.edu/short-courses/phsl-5510/index.htm

Registration Open for ICI’s Academy of Innovations Program in Israel, December 13th. Workshop Activities Organized by IEM Members Paul Iaizzo & Will Durfee

This international one-day course is recommended for aspiring medical technology entrepreneurs who seek to expand the key tools and steps in creating a biomedical start-up taking the critical first steps in invention, patenting, early prototyping and development of new concepts. The ICI Academy of Innovation speakers are the best in the field, combining frontal talks with interactive discussions and unique workshops, altogether providing the best platform to practice the innovation processes.

Academy of Innovations Program
Detailed Program