Brenda Ogle & Colleagues Create 3D-Bioprinted Patch to Heal Scarred Heart Tissue

IEM Member Dr. Brenda M. Ogle, Associate Professor of Biomedical Engineering, and her colleagues have created a 3D-bioprinted patch that can help to heal heart tissue following a heart attack. As reported by KSTP TV and KARE 11, the research, done in collaboration with the University of Wisconsin and University of Alabama-Birmingham, used laser-based 3D-bioprinting to apply human stem cells to a matrix, which grew and synchronously beat in a dish. The resulting patch was then applied to non-functioning scarred tissue in mouse hearts, which showed improved function after four weeks. This achievement is especially significant because survivors of heart attacks often permanently lose some heart function. “We don’t get new muscle cells when they are damaged, instead, we get scar tissue,” says Dr. Ogle, who has been working on the challenge of regenerating damaged heart tissue for 15 years. The next steps will be to test the patch on larger animals before, ultimately, testing it on humans. The research was funded, in-part, by IEM.

Tiny Patch Beats Like Human Heart, Could Change Treatment After Heart Attacks

Vipin Kumar Selected to 2017 Class of SIAM Fellows

IEM Member Dr. Vipin Kumar, Regents Professor of Computer Science and Engineering, has been selected as a Fellow of the Society for Industrial and Applied Mathematics (SIAM) “for contributions to data mining and high-performance computing.” Dr. Kumar’s activities have included serving as Co-founder and Steering Committee Chair of the SIAM International Conference on Data Mining, as well as in numerous other leadership roles in this field. SIAM Fellows are nominated by their peers “for their exemplary research as well as outstanding service to the community.” Dr. Kumar and other members of the 2017 Class of SIAM Fellows will be recognized at the society’s annual meeting, to be held July 10th to 14th in Pittsburgh.

2017 Class of SIAM Fellows

Theresa Reineke Named Distinguished McKnight Professor

IEM Member Dr. Theresa M. Reineke, Professor of Chemistry, has been named a 2017 Distinguished McKnight Professor. Dr. Reineke’s research theme is “Innovating Polymeric Materials for Therapeutic Delivery and Sustainability” and her research is focused on the improvement of human health and the environment through pioneering contributions to the field of polymer chemistry. The Distinguished McKnight University Professorship program recognizes outstanding faculty members who have recently achieved full professor status. Recipients hold the title “Distinguished McKnight University Professor” for the duration of their employment at the University of Minnesota.

Distinguished McKnight University Professors

Rumi Faizer Discusses with KARE 11 Value of New Method to Screen for Abdominal Aortic Aneurysms

IEM Member Dr. Rumi Faizer, Associate Professor of Surgery and Chief, Division of Vascular Surgery, discussed with KARE 11 the value of a new, life-saving screening method that was developed at the University of Minnesota to identify patients who have the highest likelihood of developing abdominal aortic aneurysms (AAA), potentially lethal and sometimes symptomless vascular condition in which the aorta, the main vessel through which blood is delivered throughout the body, becomes enlarged. Dr. Faizer says that what makes the University of Minnesota’s screening unique from those at other centers is that it evaluates patients for whom screening would not be appropriate, targeting only those patients who would benefit the most from it. The screening has already found 29 aneurysms in over 1,500 patients tested so far with annual ultrasounds, and efforts are underway to build upon that success, using CT scanning. “We’ve developed a system to identify who needs to be screened and then we are trying to work on new ways to do that screening,” says Dr. Faizer.

New U. of M. Screening Saves Man’s Life
Michael Kyba Discusses Research on Type of Muscular Dystrophy with Fox 9

IEM Member Dr. Michael Kyba, CCRF Endowed Professor in Pediatric Cancer Research, discussed with Fox 9 his research on facioscapulohumeral muscular dystrophy (FSH), a common type of muscular dystrophy in which skeletal muscles degenerate over time, starting with the facial muscles. Dr. Kyba says that “one of the saddest things that happens” to patients suffering from FSH is that “they are robbed of their ability to smile.” However, Dr. Kyba is optimistic that a treatment for the disease can be developed, due to the identification of the gene that causes it. “The hope comes down to there is actual work being done to discover the drug. About 10 years ago, we didn’t know what gene caused this disease,” says Dr. Kyba. “That’s our hope that someday in the near future we’ll have candidates that we can actually take to clinical trials.”

U. of M. Muscular Dystrophy Research Gives Patients Hope

Chetan Shenoy Discusses a Less-Invasive Imaging Approach in Management of Stable Angina with TCTMD

IEM Member Dr. Chetan Shenoy, Assistant Professor of Medicine, Cardiovascular Division, discussed with TCTMD the value of stress cardiovascular magnetic resonance (CMR) perfusion imaging in the management of patients with stable angina, compared to that of the more-invasive angiography plus fractional flow reserve (FFR). The two approaches were compared in a recent trial. “As someone who does stress CMR, the trial results were not very surprising to me,” says Dr. Shenoy. As a result of the findings, Dr. Shenoy says, “Stress CMR can and should be used as the first-line test for patients with stable angina and intermediate-to-high risk of coronary artery disease, rather than invasive coronary angiography.”

CMR Perfusion Imaging Holds Its Own Against Invasive Approach to Managing Stable Angina

Announcements

Save the Dates for 2018 Design of Medical Devices Conference & Minnesota Neuromodulation Symposium

Following the recently-completed and successful Design of Medical Devices Conference and Minnesota Neuromodulation Symposium, planning has already begun for the 2018 staging of these events. Please mark your calendars for the 2018 Design of Medical Devices (DMD) Conference, to be held from Tuesday, April 10th to Thursday, April 12th and the Minnesota Neuromodulation Symposium (MNS), to be held immediately following the DMD Conference on Thursday and Friday, April 12th and 13th. In addition, the DMD conference will hold its “Becoming a Technology Innovator” innovation workshop on Monday, April 9th.

Registration is now open for The International Conference for Technology and AnaLysis of Seizures, 2017 (ICTALS2017)

The International Conference for Technology and AnaLysis of Seizures, 2017 (ICTALS2017) will be held at the University of Minnesota from August 20th-23rd, 2017, centered around the theme “Designing the next generation of closed loop seizure control.” The goal of this conference is to bring together neurologists, neuroscientists, engineers and physicists to develop improved quantitative methods to predict, quantify, characterize, and control seizures. We are seeking abstracts for the poster session on Monday, August 21st, and can be submitted online until June 16th. Several travel awards are available for young investigators to help offset the cost of travel. Each day of the conference will focus on different aspects of closing-the-loop: (1) Input: Sensing and biomarkers; (2) Processing: System analysis, and (3) Output: Intervention. Early registration for ICTALS2017 closes on July 20th, so register today! To find out more information about the conference, including the full conference program and hotel reservations, please visit the conference website: http://ictals2017.umn.edu.