IEM News

David Odde and colleagues secure a $9.6M NCI grant to develop a physics-based approach to T-cell engineering

A multi-disciplinary team led by IEM Associate Director Dr. David J. Odde has been awarded a five-year, $10 million NIH Research Program Project Grant (P01) to advance the engineering of T-cells to make them optimally effective against pancreatic and brain tumors. Leaders of the project span the Medical School and the College of Science and Engineering: IEM members David Largaespada (Pediatrics), Paolo Provenzano (BME), and Branden Morarity (Pediatrics), along with David Masopust and Ingunn Stromnes (Microbiology and Immunology).

The primary research goal for Odde and his team is to develop a new approach to engineering T cells founded on biophysical modeling, live cell imaging, and genome engineering. This new approach will help develop design guidelines for new immunotherapies to fight brain cancer and pancreatic cancer.

According to Odde, the grant is partly the fruit of a 10-year investment from IEM. First, IEM helped fund seed research that became the foundation of Odde’s Physical Sciences Oncology Center (PSOC), which drove multiple research projects over the past five years that led to the new grant. Second, IEM’s Center Accelerator Program facilitated the development, submission, and resubmission of the grant proposal.

“We’re moving closer towards the clinic by taking therapy concepts that have emerged through our own work at Minnesota and trying to de-risk, optimize, and accelerate the translation of them into the clinic,” says Odde. He expects that the new research and development will bring an integrated engineering approach into real-world applications. “Engineers have a lot to offer in terms of understanding mechanisms that will dictate the success or failure of cancer therapies,” said Odde. “There’s a whole opportunity to create a new engineering-centric biotechnology industry here in Minnesota by focusing on immuno-oncology.”

IEM-Affiliated Biostasis Research Institute is profiled

IEM’s Center Accelerator launches new web portal

IEM’s Center Accelerator program recently launched a new web portal that makes it easier for teams to connect with the Center Accelerator team.

Over the past two years, the success of the Center Accelerator program has hinged on engagement. With Center Accelerator staff and support, several biomedical engineering teams have secured awards that will bring in over $50M to the University through 2026, with another $80M pending.

The portal requires teams to elaborate on the details of their project, such as team members, a research abstract, and relevant publications or grants. After submitting information, the Center Accelerator team will respond within one business day.
“The new portal streamlines engagement with us,” said Michael Lotti, IEM’s senior editor and manager of the Center Accelerator program. “It will enable more faculty-led teams to tackle big medical problems.”

IEM Member Highlights

Udall Center, led by Jerry Vitek, awarded $11.3 million for Parkinson’s research
Read the story here

Chetan Shenoy is lead author on research showing value of cardiovascular magnetic resonance imaging for diagnosis, care, and assessment of long-term mortality risk of patients with suspected cardiac tumors
Read the story here

Kevin Peterson discusses AI-based diagnostics startup, Treatment.com, with Yahoo Finance
Read the story here

Announcements

Earl E. Bakken Medical Device Symposium, Friday, November 12, 2021, 8:00 AM–4:00 PM, McNamara Alumni Center or live Zoom webinar

Theme: Cardiopulmonary Thromboembolic Disease: Insights and Innovations
Special Opportunity for Students, Residents and Fellows!
There is no fee for students, residents, and fellows. Attendance includes a full day of lectures, and breakfast and lunch are free. Registration is required: Registration Link

Presented by the University of Minnesota Department of Surgery, this course is designed to highlight new technological advances in the diagnosis and treatment of cardiopulmonary thromboembolic disease.

This course is ideal for cardiologists, cardiothoracic surgeons, vascular surgeons, radiologists, surgical residents and fellows, physician assistants, and other health professionals, as well as for medical device developers—anyone interested in increasing their knowledge of cardiac devices and the innovation process from theory to approved clinical device.

Objectives
1. Describe the variety of treatments and interventions available for patients with pulmonary embolism.
2. Identify best practices in medical therapies for patients with pulmonary hypertension.
3. Discuss the risk factors for pulmonary embolism in patients with COVID.
4. Evaluate and determine the optimal care plan for patients with COVID who have an increased risk of pulmonary embolism.
5. Explain new technologies available to treat chronic thromboembolic disease.
6. Identify patients who will benefit from innovative interventions for the treatment of acute pulmonary embolism.