University of Pittsburgh Center for Medical Innovation (CMI)

The Center for Medical Innovation at the Swanson School of Engineering is a collaboration among the University of Pittsburgh's Clinical and Translational Science Institute (CTSI), the Innovation Institute, and the Coulter Translational Research Partnership II (CTRP). Established in 2011, CMI promotes the application and development of innovative biomedical technologies to clinical problems; educates the next generation of innovators in cooperation with the schools of Engineering, Health Sciences, Business, and Law; and facilitates the translation of innovative biomedical technologies into marketable products and services. CMI has supported 67 early-stage projects through more than $1.2 million in funding since inception.

CMI VISION

The vision of the CMI is to establish an internationally recognized center for developing innovative medical technologies, educating students, and facilitating commercialization.

CMI MISSION

The mission of CMI has three essential components:

- Research: To provide an organizational structure to link engineering faculty, clinicians, and students at the University of Pittsburgh, and to fund early-stage development of innovative biomedical technologies.
- Education: To educate the next generation of innovators in the design, development, and commercialization of medical technologies through classroom and hands-on experiences in cooperation with the schools of Engineering, Health Sciences, Business, and Law.
- Development: To facilitate the translation of innovative biomedical technologies into marketable products, services, and business ventures in collaboration with the University of Pittsburgh Innovation Institute, Clinical Translational Science Institute (CTSI), and the Coulter Translational Research Partnership.

Structure

The CMI promotes collaborations among University of Pittsburgh clinicians and engineers which are likely to result in improvements to healthcare. A multi-disciplinary CMI leadership team is in place to manage the process. Seed money will be available to clinician-engineer teams whose collaborative project proposals are successfully reviewed and approved by CMI.

Educational Program

CMI will offer, through the Swanson School's Department of Bioengineering, two options for a Professional Masters degree, and a new graduate Certificate in Medical Product Innovation. Additionally, engineering graduate students may participate in courses and innovation projects as part of their dissertation work. Medical students will be able to satisfy School of Medicine research requirements through participation in CMI sponsored projects. Courses in innovation and entrepreneurship already offered through the Swanson School of Engineering, the Katz School of Business, and the School of Law will be available to all students interested in medical innovation. Multi-disciplinary student teams (including graduate students in engineering and business, as well as law and medicine) will work with engineering faculty, clinicians, and industry advisors to develop innovative medical technologies through the prototype stage.

UNIVERSITY OF PITTSBURGH
CENTER for MEDICAL INNOVATION
A University Center in the Swanson School of Engineering

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2018 ROUND-2 PILOT FUNDING | AWARDS ANNOUNCEMENT

The University of Pittsburgh's Center for Medical Innovation (CMI) awarded grants totaling $60,000 to three research groups through its 2018 Round-2 Pilot Funding Program for Early Stage Medical Technology Research and Development. The latest funding proposals include a new drug-eluting contact lens for treatment of dry eye disease, a new method of measuring ocular changes in glaucoma, and a new instrument for management of ketogenic diets.

CMI, a University Center housed in Pitt's Swanson School of Engineering, supports applied technology projects in the early stages of development with "kickstart" funding toward the goal of transitioning the research to clinical adoption. Proposals are evaluated on the basis of scientific merit, technical and clinical relevance, potential health care impact and significance, experience of the investigators, and potential in obtaining further financial investment to translate the particular solution to healthcare.

"This is our seventh year of pilot funding," said Alan D. Hirschman, PhD, CMI Executive Director. "Since our inception, more than $1 million from external funding sources and from the Swanson School of Engineering has been invested in early stage medical technologies. Many of these technologies have the potential to significantly improve the delivery of health care and several new companies have resulted from the program, which has successfully partnered UPMC's clinicians and surgeons with the Swanson School's engineering faculty."

2018 ROUND-2 CMI PILOT FUNDING AWARDEES

AWARD 1

Bryan Brown, PhD

Assistant Professor, Departments. of Bioengineering, Obstetrics, Gynecology, and Reproductive Sciences, McGowan Institute for Regenerative Medicine

Vishal Jhanji, MD, FRCSG, FRCOphth

Professor of Ophthalmology, Cornea, External Eye Diseases and Refractive Surgery Services, UPMC Eye Center

Mangesh Kulkarni, MD, PhD

Research Assistant Professor, McGowan Institute for Regenerative Medicine and Department of Bioengineering

FOR: Polyelectrolyte Multilayer Coating for Delivery of IL-4 from Contact Lenses for Dry Eye Disease

Development of a drug-eluting contact lens for treatment of chronic "dry eye" disease.

AWARD 2

Piervincenzo Rizzo, PhD

Professor, Department of Civil and Environmental Engineering, University of Pittsburgh

Ian A. Sigal, PhD

Assistant Professor, Department of Ophthalmology, University of Pittsburgh Medical Center, Eye & Ear Institute

Ian Conner, MD, PhD

Assistant Professor of Ophthalmology, Department of Ophthalmology, University of Pittsburgh

FOR: Quantitative Analysis of a New Tonometer to Manage/Prevent Glaucoma

Development of a novel pulse wave device for measurement of ocular tissue characteristics in the detection and treatment of glaucoma.

AWARD 3

Sung Kwon Cho, PhD

Department of Mechanical Engineering and Materials Science, Swanson School of Engineering

David Rometo, MD

Division of Endocrinology and Metabolism, University of Pittsburgh Medical Center

David Finegold, MD

Department of Human Genetics, Graduate School of Public Health

Alex Star, PhD

Department of Chemistry, Dietrich School of Arts and Sciences

FOR: Acetone Breathalyzer for Monitoring the Ketogenic State

Development of a cost-effective, rapid acetone "breath-alayzer" for clinical and consumer usage in ketogenic diets.

PREVIOUSLY AWARDED PILOT FUNDING

2018 PILOT FUNDING AWARDS

Round 1

AWARD 1 – *E-mag System for Rapid Cannulation of Fenestrated Stent Grafts to Reduce Radiation Exposure*

AWARD 2 – *Valved Stent Conduit for the Treatment of Severe Advanced Tricuspid Regurgitation*

AWARD 3 – *PopSole™ Foot Off-Loading Device*

AWARD 4 – *Local Induction of Tolerogenic T Cells to Ameliorate Inflammation in Inflammatory Bowel Disease*

AWARD 5 – *MOVISU-FIT: Mobile Wearable System for Real Time Visual Feedback and Gait Training*

2017 PILOT FUNDING AWARDS

Round 2

AWARD 1 – *A Structurally and Mechanically Tunable Biocarpet for Peripheral Arterial Disease*

AWARD 2 – *FibroKine™: CXCL10 Biomimetic Peptides for Treatment of Pulmonary Fibrosis*

AWARD 3 – *Hearing for Health: Single Unit Hearing Screener and Amplifier*

AWARD 4 – *Gel-based Reconstructive Matrix for Treating Orbital Trauma and Periocular Wounds*

AWARD 5 – *Vital-Dent, a Revitalizing Root Canal Solution*

Details of this program and other CMI related information can be found at engineering.pitt.edu/cmi