University of Pittsburgh Center for Medical Innovation (CMI)

A University Center in the Swanson School of Engineering

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 87 early-stage projects through more than $1.6 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, and the Clinical Translational Science Institute (CTSI).

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.

Directors

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Visit us at engineering.pitt.edu/cmi

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2024 ROUND-2 PILOT FUNDING | **AWARDS ANNOUNCEMENT**

The University of Pittsburgh's Center for Medical Innovation (CMI) awarded grants totaling $37,500 for three research groups through its 2024 Round-1 Pilot Funding Program for Early Stage Medical Technology Research and Development.

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 twelfth year of pilot funding," said Alan D. Hirschman, PhD, CMI Executive Director. "Since our inception, more than $1.6 million from external funding sources and from the Swanson School of Engineering has been invested in 87 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."

2024 ROUND-2 CMI PILOT FUNDING AWARDS

AWARD 1

Trent Emerick, MD, MBA

Department of Anesthesiology and Perioperative Medicine

Kevin Bell, PhD

Director, IDEA Lab, Assistant Professor in the Department of Bioengineering

FOR: One-Pass Epidural Needle

Development and testing of a novel device that allows for multiple spinal cord stimulator leads to be placed through one needle without the need of removal.

AWARD 2

Roger Klein, MD, PhD

Department of Urology

Paul Rusilko, DO

Department of Urology,
Department of Plastic Surgery

Youngjae Chun, PhD

Industrial Engineering / Bioengineering

FOR: A Novel Controllable Intravesical Bladder Outlet Occlusion Device (CIBOD)

Development and testing of a novel device that augments the leak point pressure of the bladder during pressure increases that are characteristic of stress urinary incontinence (SUI) and urge urinary incontinence (UUI).

AWARD 3

Ritesh Shrivastav

Bioengineering,
Swanson School of Engineering

Shreya Mahajan

Bioengineering,
Swanson School of Engineering

Aaron Batista, PhD

Bioengineering,
Swanson School of Engineering

Jorge González-Martínez, MD

Department of Neurosurgery

Helen Schwerdt, PhD

Bioengineering,
Swanson School of Engineering

FOR: Chemically Informed Deep Brain Stimulation for Parkinson's Disease

Development and testing of a novel chemically informed deep brain stimulation in order to treat Parkinson's Disease.

PREVIOUSLY AWARDED PILOT FUNDING

2024 PILOT FUNDING AWARDS

Round 1

AWARD 1 – *Drug-collecting Ocular Insert to Prolong Retention Time and Enhance Efficacy of Commercial Eye Drops*

AWARD 2 – *Delta Cuff: A Method for Early Detection of Post Thrombotic Syndrome*

AWARD 3 – *The EndoDx App: A Patient-Physician Tool for Noninvasive Diagnosis of Endometriosis*

2023 PILOT FUNDING AWARDS

Round 2

AWARD 1 – *Malleous: A Novel Suction-retractor Instrument to Increase Efficiency and Effectiveness in the Operating Room*

AWARD 2 – *Novel Triplex Ultrasound Array Prove for Staging Carotid Artery Atherosclerosis Plaques*

AWARD 3 – *noVRel: An Augmented Reality Real-Time Visualization System for use in the OR with Image-guided Surgery*

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