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 59 early-stage projects through more than $1 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.

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.
The University of Pittsburgh’s Center for Medical Innovation (CMI) awarded grants totaling $105,000 to five engineering and medicine groups through its 2018 Round-1 Pilot Funding Program for Early Stage Medical Technology Research and Development. The latest funded projects include a device for cannulating advanced vascular stents, an artificial tricuspid valve for treatment of heart disease, an orthotic device for treating foot pain, a biological treatment for inflammatory bowel disease, and a visual feedback system for rehabilitation therapy.

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-1 PILOT FUNDING AWARDEES**

**AWARD 1**

Bryan W. Tillman, MD, PhD  
Division of Vascular Surgery, Department of Surgery  
University of Pittsburgh School of Medicine  
Youngjae Chun, PhD  
Associate Professor, Department of Industrial Engineering  
Swanson School of Engineering  
**FOR:** E-mag System for Rapid Cannulation of Fenestrated Stent Grafts to Reduce Radiation Exposure  
Development of a vascular stent graft system that will magnetically guide cannulation of endograft branches.

**AWARD 2**

Catalin Toma, MD  
Assistant Professor, University of Pittsburgh School of Medicine Heart and Vascular Institute  
Youngjae Chun, PhD  
Associate Professor, Department of Industrial Engineering  
Swanson School of Engineering  
**FOR:** Valved Stent Conduit for the Treatment of Severe Advanced Tricuspid Regurgitation  
Development of an artificial tricuspid valve that will treat decreased right ventricular performance due to cardiac disease.

**AWARD 3**

Jeffrey Gusenoff, MD  
Department of Plastic Surgery, University of Pittsburgh Medical Center  
Beth Gusenoff, DPM  
Department of Plastic Surgery, University of Pittsburgh Medical Center  
Kurt Beschorner, PhD  
Associate Professor, Department of Bioengineering  
Swanson School of Engineering  
Seyed Reza Moghaddam, PhD  
Department of Bioengineering, Swanson School of Engineering  
Steven Donahoe, MS  
Department of Bioengineering, Swanson School of Engineering  
**FOR:** PopSole™ Foot Off-Loading Device  
Development of a shoe insert that will reduce foot pain due to fat pad atrophy in the feet.

**AWARD 4**

R. Warren Sands, MD, PhD  
T32 Clinical and Research Fellow, Division of Gastroenterology, Hepatology, and Nutrition at the University of Pittsburgh Medical School  
Steven R. Little, PhD  
William Kepler Whitford Endowed Professor and Chair, Department of Chemical and Petroleum Engineering, Swanson School of Engineering  
David G. Binion, MD, AGAF, FACG  
Professor of Medicine, Clinical and Translational Science Division of Gastroenterology, Hepatology, and Nutrition, University of Pittsburgh Medical School  
**FOR:** Local Induction of Tolerogenic T Cells to Ameliorate Inflammation in Inflammatory Bowel Disease  
Development of a potent IBD therapy with fewer side effects than current medical therapy.

**AWARD 5**

Goeran Fiedler, PhD  
Assistant Professor, Department of Rehabilitation Science and Technology, UPMC  
William Clark, PhD  
Professor, Department of Mechanical Engineering and Materials Science  
Swanson School of Engineering  
David Brienza, PhD  
Professor, School of Health and Rehabilitation Sciences  
Krista Kutina, DPT  
Researcher, School of Health and Rehabilitation Sciences  
Alicia Koontz, PhD  
Associate Professor, Veterans Administration Hospital  
April Chambers, PhD  
Research Assistant Professor, Department of Bioengineering  
Swanson School of Engineering  
**FOR:** MOVISU-FIT: Mobile Wearable System for Real Time Visual Feedback and Gait Training  
Development of a system to provide real-time visual feedback to patients working on gait corrections during mobility rehabilitation training.

**PREVIOUSLY AWARDED PILOT FUNDING**

**2017 PILOT FUNDING AWARDS**

Round 1

**AWARD 1** – Objective Postpartum Uterine Tone Monitoring  
**AWARD 2** – Novel Thermal Block Technology to Block Nerve Conduction  
**AWARD 3** – OrganEvac™ Whole Organ Thrombolysis Device

**Round 2**

**AWARD 1** – A Structurally and Mechanically Tunable Biocarpet for Peripheral Arterial Disease  
**AWARD 2** – FilmsKine™: 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**

The information printed in this document was accurate to the best of our knowledge at the time of printing and is subject to change at any time at the University’s sole discretion.

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