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## **Pitt Awarded Grant to Establish One of Three National Tissue Chip Testing Centers**

The University of Pittsburgh Drug Discovery Institute (DDI) is one among three institutes in the country to be awarded a grant to establish a new Tissue Chip Testing Center (TCTC). The grant, led by Dr. Mark Schurdak, Ph.D., associate professor of computational and systems biology at Pitt's School of Medicine and Director of Operations of the Drug Discovery Institute, was awarded under the National Institutes of Health (NIH) tissue chip initiative.

More than 30 percent of drugs that show promise during pre-clinical trials in animal models fail in human clinical trials due to toxicity. Additionally, approximately 65 percent of candidate drugs fail due to inadequate efficacy.

The goal of the tissue chip initiative, developed by the NIH National Center for Advancing Translational Sciences (NCATS), in collaboration with the Defense Advanced Research Projects Agency and the Food and Drug Administration, is to develop three dimensional platforms on which living tissues and cells can be grown.

The human tissue chips or organ-on-chips are designed to serve as accurate human organ models for experimental testing. Using a tissue chip system that more closely resembles human organs will dramatically increase the speed and effectiveness of drug testing.

The TCTCs established through this grant will help test and validate tissue chip platforms that have been developed over the past four years as part of the NCATS tissue chip initiative. To support the informatics needs of this initiative, the University of Pittsburgh Drug Discovery Institute is creating a Microphysiological Systems (MPS) Testing Database Center which will serve as one of the TCTCs. The other two centers will be established at the Massachusetts Institute of Technology and Texas A&M University.

Data generated by the TCTCs on diverse organ systems will be stored in the MPS Database and made accessible to the broader research community. The MPS Testing Database Center also will develop and implement tools to evaluate the performance of the tissue chips, including their reproducibility and ability to predict clinically relevant drug responses. The Center's approach will exploit University of

Pittsburgh's strengths in drug discovery science, informatics, and database development and management.

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The University of Pittsburgh Schools of the Health Sciences include the schools of Medicine, Nursing, Dental Medicine, Pharmacy, Health and Rehabilitation Sciences and the Graduate School of Public Health. The schools serve as the academic partner to the UPMC (University of Pittsburgh Medical Center). Together, their combined mission is to train tomorrow's health care specialists and biomedical scientists, engage in groundbreaking research that will advance understanding of the causes and treatments of disease and participate in the delivery of outstanding patient care. Since 1998, Pitt and its affiliated university faculty have ranked among the top 10 educational institutions in grant support from the National Institutes of Health. For additional information about the Schools of the Health Sciences, please visit [www.health.pitt.edu](http://www.health.pitt.edu).

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