



Grant to Support Liver Disease Drug Development, Potentially Reduce Animal Testing

A \$7.8 million federal grant will fund a new drug discovery center at the University of Pittsburgh.

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[Liver disease](#) researchers at the University of Pittsburgh School of Medicine (UPSM) will use a \$7.8 million [federal grant](#) to build a new drug discovery center, which will test whether using human cells can replace animals in determining if and how a new drug works.

Provided by the National Center for Advancing Translational Sciences, the [grant](#) will fund the Pitt Translational Center for Microphysiology Systems and support researchers and clinicians at UPSM and the University of Pittsburgh Medical Center (UPMC) in improving drug discovery and development, according to a [UPSM news release](#).

“We are honored to have been selected as one of four translational centers in the country to receive this funding,” said contact principal investigator, D. Lansing Taylor, PhD, director of the UPDDI and Distinguished Professor in Pitt’s Department of Computational and Systems Biology. “It’s going to be a game changer in testing drugs for toxicity and efficacy.”

In collaboration with the Food and Drug Administration (FDA), investigators will use human “liver-on-a-chip” systems, also called microphysiology systems (MPS), which replicate the physiological environment and functions of human organs. These systems can predict drug responses in disease models to evaluate drug safety while reducing the use of animal testing.

Research will initially focus on toxicology, drug testing and selection patient cohorts in clinical trials for [metabolic dysfunction-associated steatotic liver disease](#) (MASLD, formerly known as non-alcoholic fatty liver disease, or NAFLD).

Often referred to as “[silent diseases](#),” MASLD and metabolic dysfunction-associated steatohepatitis (MASH, formerly known as non-alcoholic steatohepatitis, or NASH) are responsible for a growing proportion of advanced [liver disease](#), mirroring a global rise in [obesity](#). MASLD can lead to liver fibrosis, cirrhosis and even [liver cancer](#).

Even though MASLD affects about 25-30% of the world population, no drug has yet to receive FDA

approval. With no effective approved medical therapies, management depends on lifestyle changes such as weight loss and exercise. What's more, current drugs in development may help only a small portion of patients, which may indicate the need for a precision medicine approach, according to the news release.

"The center benefits from the recent implementation of the FDA Modernization Act 2.0 that emphasizes alternative approaches, including MPS, to traditional testing with animals for predicting drug safety before starting human clinical trials," said Alejandro Soto-Gutierrez, director of the Center for Transcriptional Medicine and a professor of pathology, in the news release.

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