InSphero and PharmaNest Unveil a Promising Tool for MASH Drug Discovery in a Breakthrough Study

InSphero published a groundbreaking peer-reviewed paper in Nature's Scientific Reports, challenging the limitations of in vitro models in MASH Drug Discovery.

SCHLIEREN, ZURICH, SWITZERLAND, March 15, 2024 /EINPresswire.com/ -- InSphero's Liver Disease team has published a groundbreaking peer-reviewed paper in Nature's Scientific Reports, challenging the limitations of in vitro models in MASH Drug Discovery. The study, in collaboration with PharmaNest, fills an existing gap, by developing and demonstrating a novel method for phenotypic quantification of fibrosis, using the scalable, reliable, and reproducible 3D InSight™ MASH Model.

Challenging the status quo in MASH drug discovery

Metabolic dysfunction-associated steatohepatitis (MASH) is a severe liver disease characterized by lipid accumulation, inflammation, and fibrosis. The development of MASH therapies has been hindered by the lack of human translational models and limitations of analysis techniques for fibrosis.

"We have already demonstrated that 3D models are a highly predictive tool for drug responses, but image analysis for complex phenotypes was missing", said Dr. Radina Kostadinova, first author of the recently published paper. "What we have developed in this new study together with our partners from PharmaNest is a unique digital pathology platform for fibrosis quantification, enabled by InSphero's human-derived physiologically relevant 3D in vitro MASH model."

Key findings unlock new possibilities in MASH drug discovery

"One of the crucial findings of our paper is that secreted fibrosis biomarkers might not be sufficient to determine the antifibrotic potential of clinical compounds in the MASH drug discovery process.", commented Dr. Simon Ströbel, co-author. "Our tissue model enabled us to

perform classical histology and combine this with the digital pathology algorithm from PharmaNest to further quantify the tissue structure and to extract phenotypic information. We tested this algorithm with tool compounds, namely an Alk5-inhibitor and an anti-TGF-β antibody, and we could show that those compounds clearly reduce the fibrosis phenotype."

The research team then used the clinical compounds Firsocostat and Selonsertib, known to have anti-fibrotic effects in humans. The results showed that both clinical compounds reduced the deposition of fibrillated collagens using FibroNest™, however, their effect was mild on the decrease of the pro-fibrotic soluble biomarkers.

The paper highlights the importance of using histology and digital pathology methods in vitro in pre-clinical development to avoid missing relevant anti-fibrotic effects of compounds during the drug discovery process.

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