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Media Release

InSphero Study Reveals Enhanced Stress-Responsive & Metabolic Gene Expression in 3D Liver Microtissues

Schlieren, Switzerland, January 30, 2014 – Publication in the Journal of Tissue Science & Engineering characterizes 3D rat liver microtissues as a beneficial organotypic model system for toxicology and compound de-risking.

Findings in a recent research article in the Journal of Tissue Science & Engineering, co-authored by InSphero AG and the University of Basel, Switzerland, provided further evidence supporting the more organotypic nature of 3D liver microtissues, and their utility as improved model systems for toxicity testing and assessment of drug-induced liver injury (DILI).

The study aimed to characterize novel 3D rat liver spheroids by comparing the expression and activity of key enzymes involved in cytoprotection (Nrf2-responsive genes) and glucocorticoid metabolism (Glucocorticoid Receptor (GR)-responsive genes) in InSphero's 3D Insight™ Rat Liver Microtissues relative to traditional 2D sandwich cultures or rat hepatoma cell lines. The data revealed a distinct increase in the level and duration of expression for multiple Nrf2- and GR-responsive genes in 3D rat liver microtissues. The increased expression in 3D- versus 2D- culture was seen to persist over 3 weeks in culture, as was sustained metabolic activity of the microtissues, assessed by their ability to convert cortisone to cortisol.

Dr. Simon Messner, Product Manager at InSphero AG and co-author on the manuscript, stated the findings will prove beneficial to researchers looking for more long-lived toxicity models. "Currently used 2D-culture systems often fail to predict hepatotoxicity because the liver-specific gene expression is lost within 48 hours. In contrast, 3D Rat Liver Microtissues preserve liver-specific gene expression over 4 weeks in culture, which enables more predictive drug testing."

The results provide the latest insight into the more liver-like gene expression and metabolic profile of 3D microtissues, further indicating their use as a more suitable *in vitro* model during early-stage drug development to accurately assess and predict DILI.

To find out more about InSphero visit www.insphero.com .

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About InSphero

InSphero is a leading supplier of organotypic, biological in vitro 3D microtissues for highly predictive drug testing. The company, headquartered in Zurich, Switzerland, with subsidiaries in the USA and in Germany, currently counts all of the top ten global pharmaceutical and cosmetics companies as customers. InSphero 3D Insight™ Microtissues enable more biologically relevant in vitro applications in efficacy and toxicology. The spin-off company of the Swiss

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Federal Institute of Technology (ETH) Zurich and the University Zurich has been recognized for its scientific and commercial achievements with a number of national and international awards and is also certified to the ISO 9001:2008 standard for its Quality Management System.

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InSphero's 3D Insight™ Rat Liver Microtissues of InSphero