

Media Release – For Immediate Distribution

Comprehensive Study by AstraZeneca and Genentech Confirms Superiority of InSphero Human Liver Microtissues for Prediction of Drug-Induced Liver Injury

***Archives of Toxicology* publication reveals microtissues are twice as sensitive as 2D primary human hepatocytes (PHH) for predicting hepatotoxicity of 110 clinically defined DILI compounds.**

Schlieren, Switzerland – June 29, 2017 In the most comprehensive evaluation of 3D spheroid hepatic cultures conducted to date, a publication co-authored by lead toxicologists and drug safety experts at AstraZeneca and Genentech revealed InSphero [3D InSight™ Human Liver Microtissues](#) to be a more sensitive and highly specific *in vitro* model for predicting drug-induced liver injury (DILI) compared to 2D models. The study entitled, "[Utility of spherical human liver microtissues for prediction of clinical drug-induced liver injury](#)," was published online Tuesday, June 13 in the journal *Archives of Toxicology*. Dr. William Proctor, Head of Investigative Toxicology at Genentech, and Alison Foster, Senior Scientist in the Drug Safety and Metabolism group at AstraZeneca, were co-first authors on the publication.

2D PHH assays have been the "gold-standard" model used for DILI testing, yet DILI still remains one of the leading sources for drug attrition, black box warnings, and post-market withdrawal of drugs. Thus, there is a growing need for better predictive tools to assess liver injury earlier in the drug development process. The authors note in the paper that, "3D models have shown promise in small sets of DILI compounds, but a more comprehensive retrospective study of DILI positive and negative drugs to test the predictive power of 3D models head to head with 2D PHH assays had not been performed."

The study determined that regardless of the threshold used, "Human Liver Microtissues demonstrated increased sensitivity in identifying known hepatotoxicants versus PHH, while specificity was consistent across both assays." Microtissues also, "outperformed PHH in correctly classifying hepatotoxicants from different pharmacological classes of molecules." Furthermore, the authors found that 3D microtissues displayed sufficient structural and functional characteristics to warrant exploratory studies to see if novel biomarkers used in the clinic could also be detected *in vitro*. Findings revealed that despite each microtissue consisting of ~1000 cells, the mechanistic and exploratory hepatotoxicity biomarkers miR-122, HMGB1, and α -GST could be detected in the culture supernatants, demonstrating that, "3D liver microtissues have the potential to recapitulate *in vivo* findings *in vitro*."

"This landmark study provides convincing, independent evidence that InSphero liver microtissues can help identify hepatotoxic drugs with greater sensitivity without sacrificing specificity, says InSphero Chief Executive Officer and Co-founder Dr. Jan Lichtenberg. "Having two of the world's leading pharmaceutical companies collaborate to produce this thorough validation further confirms that our 3D models not only better reflect *in vivo* biology, but also deliver the reproducibility and scalability required to meet the early stage screening demands of large



InSphero AG
Wagistrasse 27
CH-8952 Schlieren
Switzerland
Tel: +41 44 515049-0
Fax: +41 44 515049-1
www.insphero.com

pharma. Our assay-ready 3D InSight™ models offer a cost-effective, turnkey solution that gives toxicologists greater confidence when characterizing risk in lead compound sets.”

3D InSight™ Human Liver Microtissues are a standardized primary human liver model developed by InSphero that display enhanced liver phenotype, metabolic activity, and stability over 28 days in culture, enabling long-term drug exposure studies not attainable with 2D hepatic models.

For more information about InSphero 3D InSight™ Liver Microtissues and applications, visit www.insphero.com

####

InSphero contacts

Dr. Randy Strube
Director of Global Marketing
Phone +1 800-779-7558 ext. 102
randy.strube@insphero.com

Dr. Jan Lichtenberg
Chief Executive Officer and InSphero Co-founder
Phone +41 44 5150490
jan.lichtenberg@insphero.com

About InSphero

InSphero sets the standard for *in vitro* testing of novel drugs in the pharmaceutical and biotechnology industry with comprehensive solutions that provide greater confidence in decision making. Its robust and highly physiologically relevant suite of 3D InSight™ Microtissues and Services are used by major pharmaceutical companies worldwide to increase efficiency in drug discovery and safety testing. InSphero patent-pending technologies and methods enable large-scale, reproducible production of scaffold-free 3D microtissues driven solely by cellular self-assembly. The company specializes in delivering assay-ready and custom 3D models derived from liver, pancreas, and tumor tissues, to provide unrivalled biological insight into liver toxicology, metabolic diseases (e.g., diabetes and liver diseases), and oncology (with a focus on immuno-oncology). All InSphero microtissues are thoroughly validated to ensure the highest quality, certified for use in a variety of assays, and shipped globally to customers in a patented, easy-to-use spheroid-optimized platform, ready for research. Field application scientists and research staff with expertise in working with 3D models help ensure efficient integration and onsite training as needed. For customers who prefer an outsourcing strategy with fast turnaround, InSphero also offers contract research services utilizing their 3D microtissue models.

InSphero 3D InSight™ solutions drive significant findings in [peer-reviewed journals](#), through collaborative industry initiatives such as [EU-ToxRisk](#) and [HeCaToS](#), and have gained validation in the world's largest government institutions and pharmaceutical, chemical and cosmetics companies.

Founded in 2009, the privately held company is headquartered in Switzerland, with subsidiaries in the United States and Germany. It has been recognized for its scientific and commercial achievements with several national and international [awards](#).



InSphero AG
Wagistrasse 27
CH-8952 Schlieren
Switzerland
Tel: +41 44 515049-0
Fax: +41 44 515049-1
www.insphero.com

Follow us on [Twitter](#) and [LinkedIn](#).

Images



InSphero 3D InSight™ Liver Microtissues help drug discovery and development groups predict drug-induced liver injury (DILI) with greater confidence, providing more relevant and reliable 3-dimensional cell based models for *in vitro* drug safety testing.