

Media Release

InSphero Announces Collaboration with NIH National Center for Advancing Translational Sciences (NCATS)

Schlieren, Switzerland and Rockville, Maryland, March 20, 2014 - Study to characterize 460 NCATS anti-cancer agents in 3D tumor models generated using InSphero technology.

InSphero AG today announced a collaboration with the National Institutes of Health's (NIH) National Center for Advancing Translational Sciences (NCATS) to identify anti-cancer agents with cytotoxic activity in 3D culture models. The project includes development of multi-cell type spheroids (MCTS) by InSphero in the company's 96- and 384-well [GravityPLUS™ hanging drop plates](#), using tumor cell lines currently being at NCATS. InSphero will generate the 3D microtissues and provide them to NCATS to screen a collection of 460 anti-cancer agents for cytotoxic effects using assays that measure cell proliferation, tissue integrity, and tissue size.

In the study, MCTS cultures will be explored as a model of tumors to predict the effectiveness of anti-cancer drugs. Currently, high-throughput screens to discover such agents are typically conducted in two dimensional (2D) proliferation assays using cells grown on tissue-culture treated plastic surfaces. However, it is evident that such 2D assays using cancer cell lines fail to reproduce the cellular heterogeneity of tumors, as well as the complexity of the interactions with the tumor microenvironment that are seen *in vivo*. As a consequence, compounds that appear to be cytotoxic in 2D cell proliferation assays often fail to produce an effect *in vivo*.

The 3D microtissues are thought to offer a more accurate physiological representation of a tumor and its extracellular environment, including the effect of additional cell types such as endothelial and stromal cells. 3D cultures are also being used as models to investigate tumor cell sub-populations called cancer stem cells or tumor-initiating cells. These cells have self-renewal potential and are thought to drive metastasis and tumor formation. They also appear to be resistant to current chemotherapy and radiation-therapy treatments that produce cancer recurrence.

"InSphero is excited to join forces with the expertise and resources from the NCATS team to help screen their oncology library for compounds that can kill cancer cells in the context of a more relevant tumor model system," says Jens Kelm, Ph.D., Chief Scientific Officer and co-founder of InSphero. "By co-culturing non-proliferative stromal cells in combination with tumor cell lines, the 3D spheroids more accurately reflect tumor heterogeneity and tumor microenvironments. Our system will enable direct discrimination of compounds that act specifically on the cancer cell population from those having a general cytotoxic effect."

"Our work with InSphero is yet another example of how NCATS fosters collaborations to explore novel technologies that carry the promise to accelerate discovery of molecular therapeutic agents across multiple disease areas," said Anton Simeonov, Ph.D., acting deputy scientific director of NCATS' Division of Pre-Clinical Innovation.

For more information about NCATS, visit www.ncats.nih.gov.

For more information about InSphero, visit www.insphero.com.

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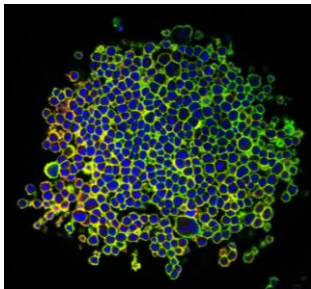
About InSphero

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 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 and NCATS will screen tumor cells grown in 3D spheroids, like the one pictured above