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Novel liquid scaffolds for cell and tissue growth for regenerative medicine and research applications

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In this presentation we will for the first time showcase a completely novel system of cell culture permitting cells to be first grown in 3D and then harvested as required. This system has been specifically designed for use with advanced imaging and automated liquid handling and HTS. Unlike any other 3D assay systems currently used, our technology does not rely upon solid gel matrices, scaffolds, micro-patterned surfaces or hanging drop assay systems to achieve reproducible micro tissue growth. Indeed many of the inherent technical issues surrounding these technologies are avoided by utilizing this novel 3D culture technology. This reversible cell scaffold system comprises of two individual components (i) A low viscosity liquid support/ scaffold (ii) an agent that deactivates the scaffold, permitting sedimentation of cellular structures under gravity permitting either high content imaging in situ or recovery for further analysis such as gene expression or biochemical analysis. This system of suspension/deactivation has been used for great effect in both high content imaging and subsequent gene expression studies.

Biography

Anthony Davies has been active in rapidly growing field of high content screening and analysis (HCS/A) where he has been responsible for the setting up and running of one of the first purpose built academic screening centers in Europe (INCHSA) which is based in the Department of Clinical Medicine Trinity College Dublin. His research has been focused on the development of advanced in vitro cell based models for almost 2 decades. As part of these activities he played a key role in the setting up and running of the first academic course specifically focused on the use of advanced research technologies in Biomedical Research. Most recently, he has developed and commercialized a suite of novel micro-plate Bio-reactor technologies and liquid 3D cellular scaffolds specifically designed for use in automated drug discovery.

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