

Enhance imaging resolution for 3D cell culture system

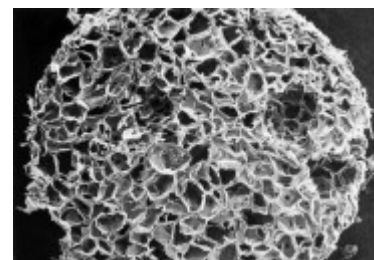
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Nature of work: Experiments

Area: Chemical Engineering, Tissue Engineering

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Brief description: It is been widely recognised that traditional flat and rigid plastic or glass substrates used for monolayer cell culture are not representative for true extracellular environment in the human body. Monolayer cell culture system can not produce physiologically relevant tissue-specific architecture, mechanical and biochemical cues, and cell-to-cell communication. However, establishing 3D cultures as a mainstream approach requires the development of standard protocols, new cell lines and quantitative analysis methods, which include well-suited three-dimensional imaging techniques.



3D samples are typically highly scattering and several hundreds of micrometres thick, and challenging for conventional microscopy. Moreover, minimizing photobleaching and light-induced damage is essential for large living samples. In this project, a method to enhance imaging resolution will be developed based on quantum dots.

More details on this project or other related advanced research topics can be referred to the website of www.adelaide.edu.au/bio-nano-tech or visit my office. Our current research interests include water, energy, materials, biotechnology, tissue engineering, and others.