

演講者：李亦宸教授（逢甲化工系）

1. 演講題目：

3D Bioprinting and Serum Components for the Applications in Neural Tissue Engineering

2. 演講摘要：

Fabricating biomimetic 3D tissue/organ-based systems for drug testing is an important topic in tissue engineering field. However, the interactions among cells, materials, and signals are complex so that there are many challenges existing in the fabrication of biomimetic 3D tissues/organs, such as regulating proliferation and differentiation of cells and fabrications of biomimetic 3D structures.

In this topic, we will introduce the single- and multi-materials bioprinting techniques for making biomimetic 3D constructs. Through these techniques, it could solve the current issue that 2D materials are difficult to provide a complex 3D environment for culturing cells. Moreover, we will also systematically analyze the effects of serum components on the proliferation and differentiation of brain-derived stem cells. By analyzing serum components, we could obtain a neuron-differentiation medium with the serum fraction less than 100 kDa (100KD medium) and a NSPC proliferation medium containing epithelial grow factor and fibronectin (Medium B). These media are useful for regulating the behaviors of stem cells.

Therefore, starting from neural tissue engineering, we hope to provide the results to solve the current challenges in neural tissue engineering. Then, these results could be extended to use to fabricate biomimetic 3D tissue/organ platforms for drug testing.

3. 講者 CV：

2002-2006 Bachelor, Department of Chemical Engineering, Tamkang University.

2006-2013 Ph.D., Institute of Biomedical Engineering, National Taiwan University.

2014-2015 Postdoctoral fellow, Institute of Biomedical Engineering, National Taiwan University.

2015-2017 Postdoctoral fellow, Harvard Medical School.

2017-2018.06 Associate professor, South China University of Technology.

His group is interested in studying the fundamental researches of tissue engineering, developing artificial tissues/organs and organs-on-chips models via 3D bioprinting and microfluidic technologies. Through these researches, he wants to further apply the theories from fundamental researches and the developed models to the applications of drug testing/screening, developmental biology, biosensor, and regenerative medicine.