H. Hosseinkhani et al., Med chem 2013, 3:4
http://dx.doi.org/10.4172/2161-0444.S1.009

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Medicinal Chemistry & Computer Aided Drug Designing

October 15-17, 2013 Hampton Inn Tropicana, Las Vegas, NV, USA

Three dimensional systems for drug discovery applications

H. Hosseinkhani
National Taiwan University of Science and Technology, Taiwan

The increasing interest in nanotechnology has stimulated the researchers to scrutinize biological elements and learn from nature. However, little is known about the potential risks of the nanoscale, especially with nanoparticles, and the control of adverse effects is a high political priority in the world. The ability to generate three-dimensional (3D) *in vitro* living organs that can mimic organ and tissue structure and function is of benefit for a variety of biological applications from basic biology to drug discovery, and will have great impact on the future of science to use human organs and tissues not only as new therapeutic approaches but also as intelligent biological tools for many applications such as early detection of newly formed diseases, next generation of diagnostic tools. Many 3D models currently in practice, however, require expensive equipment, large sample volumes, long incubation times and/or extensive expertise, and the most disadvantages of them is that they are too far from the nature of human organs. Because of the above problems, research and development on drug discovery, regenerative medicine, biotech and pharmaceutical Industries are very costly and takes several years to bring a single drug/product to the marketing. The goal of this research is to merge biomaterials science, nanotechnology, and biological principles to generate 3D *in vitro* living organs to mimic organ/tissues in order to partially reduce the amount of *in vitro* and *in vivo* animal testing, clinical trials, and to solve the above problems. In the present seminar, new technology on the fabrication new devices for biological applications will be presented.

hosseinkhani@mail.ntust.edu.tw