

Annual Summit on

CELL SIGNALING, CELL THERAPY AND CANCER THERAPEUTICS

September 27-28, 2017 Chicago, USA



Xiuzhi Susan Sun

Kansas State University, USA

Advanced biomaterial PepGel - a new tool for translational research in cell therapy

Life science and biomedical advancement have been limited by the traditional 2D cell culture system. Industries and scientists are switching to 3D cell culture system with the hope of more accurately mimicking the native extracellular microenvironment for translational research leading to clinical applications. Advanced self-assembly peptide hydrogel (PepGel) technology has been recently developed in the Biomaterials and Technology Lab at Kansas State University. The peptide structure was inspired by human muscle and spider silk backbone structure that can form hydrogels at physiological conditions. The peptide can self-assemble into nanofiber networks with 5-150 nm in diameter and 50-2000 nm in pore size that are similar geometry to extracellular matrix (ECM). The hydrogel has sheer-thinning and self-healing properties. This new PepGel system has large flexibility in controlling the gel stiffness, viscoelastic behavior and surface properties. ECM ligands can be rationally built in the backbone of the PepGel to improve cell properties as needed. PepGel is injectable and biocompatible to biological system as well as compatible with many ECM proteins and cell growth factors. Because of this, the PepGel may have multi applications in the advancement of cell therapeutics strategies for various difficult diseases. This seminar will present PepGel technology, cell studies *in vitro* and cell delivery *in vivo* and case studies with stem cells, cancer cells, virus/antigen and 3D cell based model for drug toxicity testing.

Biography

Xiuzhi Susan Sun is a distinguished Professor of Kansas State University. She is the Founder of the Biomaterials and Technology Lab at KSU. Her research interests are in biomaterials design and fabrication, particularly in protein and lipids structure and functional properties at monomers and polymer levels for environmental and medical applications, such as hydrogels, biobased adhesives, resins and coatings. She is a key Founder of the PepGel and PG Biotech companies with the purpose of improving human health through her novel biomaterial discoveries. She earned her Doctor of Philosophy from the University of Illinois Urbana-Champaign, IL.

xss@ksu.edu

Notes: