Joint Department of

BIOMEDICAL ENGINEERING

UNC CHAPEL HILL | NC STATE UNIVERSITY

Coulter Seminar Series Presents

"3D Bioprinting Strategies for Building Body Parts"

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Dr. Lee received his Ph.D. in Chemical Engineering at Hanyang University, Seoul, Korea in 2003 and took a postdoctoral fellowship in the Laboratories for Tissue Engineering and Cellular Therapeutics at Harvard Medical School and Children's Hospital Boston and the Wake Forest Institute for Regenerative Medicine where he is currently a faculty member. He is also cross-appointed to the Virginia Tech-WFU Biomedical Engineering and Science. Dr. Lee's scientific areas of interest include: Designing 3D microenvironments for tissue engineering applications; 3D integrated tissue-organ printing (ITOP) system for bioengineering complex, composite tissues and organs; bio-adhesion ad bio-integration between biomaterials and cell/tissue; drug/protein delivery system; bioconjugation and polymer synthesis; bioreactor system for preconditioning; in vitro microphysiological system; NIR fluorescence-based monitoring system.

ABSTRACT

Three-dimensional (3D) bioprinting technologies combined with tissue engineering principles have been developed to offer the creation of biological tissue constructs that mimic the structural, anatomical, and functional features of native tissues or organs. These cutting-edge technologies could make it possible to precisely deposit multiple cell types and biomaterials in a single 3D tissue architecture. Consequently, 3D bioprinting has rapidly become of the most attractive and powerful tool to bioengineer more anatomical and functional similarity of human tissues or organs for future clinical tissue engineering and regenerative medicine applications. To support these strategies, current efforts in 3D bioprinting are focused on the development of the bioinks that provide not only mechanical support but also tissue-specific microenvironmental cues. This presentation will overview 3D bioprinting technologies and their applications in tissue engineering and regenerative medicine.

Friday, August 14th
12:00 Noon

Seminar will be presented virtually via Zoom:
https://go.unc.edu/f3QHx