

## **Clinical Translation in Biofabrication**

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### **Abstract**

The US Department of Health and Human Services has recognized regenerative medicine as an innovative scientific field that would become the standard of care for replacing tissue/organ systems in the human body. As such, recent advances in this field have offered new therapeutic opportunities that facilitate the restoration and maintenance of normal tissue function. Various engineering strategies have been developed and applied to build functional tissues and organs for clinical applications. While techniques developed for tissue engineering and regenerative medicine applications have had initial successes in building a number of tissues clinically, challenges still exist in developing complex tissue systems. In recent years, 3D bioprinting has emerged as an innovative tool that enables the rapid construction of complex 3D tissue structures with precision and reproducibility. In this session novel and versatile approaches to building tissue structures using 3D printing technology will be discussed. Clinical perspectives unique to 3D printed structures will also be discussed.

### **Biography**

Dr. Yoo is Professor and Associate Director of the Wake Forest Institute for Regenerative Medicine (WFIRM), with a cross-appointment to the Departments of Urology, Physiology and Pharmacology, and the Virginia Tech-Wake Forest School of Biomedical Engineering and Sciences. Dr. Yoo's research efforts have been directed toward the clinical translation of tissue engineering technologies and cell-based therapies. Dr. Yoo's background in cell biology and medicine has facilitated the transfer of several cell-based technologies from the bench-top to the bedside. A few notable examples of successful clinical translation include the bladder, urethra, vagina, and muscle cell therapy for incontinence. Dr. Yoo has been a lead scientist in the bioprinting program at WFIRM and has been instrumental in developing skin bioprinting and integrated tissue and organ printing (ITOP) systems for preclinical and clinical applications.

