The Food and Drug Administration's (FDA's)
2015 ORSI Science Symposium
April 27, 2015
SPEAKER ABSTRACTS AND BIOGRAPHIES

Session 1: Centers for Excellence in Regulatory Science and Innovation (CERSIs) Presentations – 8:35-11:30 AM

University of Maryland CERSI

CERSI	**University of Maryland**
Speaker	**Yu Chen, PhD** **Associate Professor** **University of Maryland, College Park, MD**
Title and Location	**Yu Chen, PhD**
Biography	**Dr. Yu Chen is an Associate Professor of Bioengineering at the University of Maryland, College Park, USA. Dr. Chen received his B.S. degree in Physics from Peking University in 1997, and his Ph.D. degree in Bioengineering from University of Pennsylvania in 2003. Dr. Chen's research interests encompass the areas of biomedical photonics and imaging, including optical coherence tomography (OCT), multiphoton microscopy (MPM), needle-based endoscopy, and biomedical applications such as kidney imaging, brain mapping, and cancer detection. He has Jed numerous research projects funded by NIH and NSF. He has published more than 60 peer-reviewed papers. Dr. Chen is a Fellow of the American Society for Laser Medicine and Surgery.**
Presentation Title	**3D Printed Biomimetic Phantoms for Assessment of Biophotoinics Imaging Systems**
Presentation Abstract	**The emerging technique of three-dimensional (3D) printing provides a revolutionary way to fabricate objects with biologically realistic geometries. We have performed optical and morphological characterization of basic 3D printed tissue-simulating phantoms and found them suitable for use in evaluating biophotonic imaging systems. We also assess the potential for printing** **phantoms with irregular, image-defined vascular networks that can be used to provide clinically-relevant insights into device performance. A polymer with biologically realistic optical properties was identified by spectrophotometer measurements of several commercially available samples. Phantoms were printed with the retinal vascular network reproduced as~ 1.0 mm diameter channels at a range of depths up to~ 3 mm. The morphology of the printed vessels was verified by volumetric imaging with µ-CT. Channels were filled with hemoglobin solutions at controlled oxygenation levels, and the phantoms were imaged by a near-infrared hyperspectral reflectance imaging (HRI) system. Overall, results indicated that 30 printed phantoms are useful for assessing biophotonic system performance and have the potential to form the basis of clinically-relevant standardized test methods for assessment of medical imaging modalities.**