University of Houston - Biomedical Engineering Seminar

Friday, March 11, 2022, 12 noon

Via Zoom:

https://uh-edu-cougarnet.zoom.us/j/97219977403?pwd=V0lRTGhJMTdDQ1dwUDRJcGhYNTVFZz09

Optical Theranostics Using Red Blood Cells

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Abstract

Cell-based systems present a new type of platform in contemporary medicine for the delivery of a wide range of therapeutic, imaging, and biosensing cargos. In particular, red blood cells (RBCs) have been an attractive platform due to their potential biocompatibility, low immunogenicity, and natural mechanisms for elimination. Using RBCs, we have engineered particle delivery systems that can be loaded with various materials including the FDA-approved near infrared (NIR) chromophore, indocyanine green. In this seminar, I will provide some of the optical and physical characteristics of these particles, and demonstrate their capability as photo-theranostic constructs for NIR imaging and photo-therapeutic applications in cancer and cutaneous diseases such as the port wine stain using relevant animal models. I will also describe the importance of the membrane biochemical and biomechanical properties of these delivery systems towards prolonged circulation.

Biosketch

Bahman Anvari obtained his B.A.in Biophysics from Berkeley, and Ph.D. in Bioengineering from Texas A&M. Then he did a Postdoc at the Beckman Laser Institute at UC Irvine, and then later he was a Research Assistant Professor at Harvey Mudd College. In collaboration with other colleagues at UC Irvine, he was involved in development, commercialization, and clinical translation of technologies for laser treatment of cutaneous diseases, which continue to be in use worldwide. Dr. Anvari joined the Department of Bioengineering at Rice University in 1998 as an Assistant Professor and became an Associate Professor in 2003. In 2006, he joined the Department of Bioengineering at UC Riverside as a Professor. Dr. Anvari is a Fellow of AIMBE, AAAS, SPIE, and BMES. He is the 2019 recipient of the Caroline & William Mark Memorial Award by the American Society for Laser Medicine and Surgery. Dr. Anvari is the Founding Specialty Chief Editor of the Biophotonics Section of Frontiers in Photonics, and the Editor-in-Chief of the Biological and Bio- Materials Section of Biomolecules.