

UCSD NANOENGINEERING/CHEMICAL ENGINEERING

Jan B. Talbot Distinguished Lectureship

Wednesday, December 6th, 2023

Seminar Presentation: 2:00pm - 3:00pm

SME room 248

“Leveraging the Natural Cellular and Biomolecular Interactions in Blood for the Design of Targeted, Anti-Inflammatory Particle Therapeutics.”

Dr. Lola Eniola-Adefeso, PhD

*Professor
University of Michigan*

Abstract: Vascular-targeted particle therapeutics offer the possibility of increased drug effectiveness while minimizing side effects often associated with systemic drug administration. Factors that influence the likelihood of targeted particle therapeutics to reach the vascular wall are the ability to identify: 1) a disease-specific target, 2) the appropriate drug carrier type and geometry for efficient interaction with the vascular wall, and 3) a drug-carrier combination that allows for the desired release of the targeted therapeutics. Our work focuses on probing the role of particle geometry, material chemistry, and blood rheology/dynamics on the ability of vascular-targeted drug carriers to interact with the blood vessel wall - an important consideration that will control the effectiveness of drug targeting regardless of the targeted disease or delivered therapeutically. This presentation will highlight the carrier-blood cell interactions that affect drug carrier binding to the vascular wall and alter critical neutrophil functions in disease. The talk will present the material design parameters for optimal drug carriers' design for active and passive use in treating acute lung injury and other inflammatory diseases.

Biosketch: Dr. Omolola Eniola-Adefeso is the University Diversity and Social Transformation Professor of Chemical Engineering and Biomedical Engineering at the University of Michigan-Ann Arbor. She received a doctoral degree (2004) in Chemical and Biomolecular Engineering at the University of Pennsylvania. She was a postdoctoral associate in the Pediatrics/Leukocyte Biology at Baylor College of Medicine. Dr. Eniola-Adefeso joined the faculty of Chemical Engineering at the University of Michigan in 2006, where she runs the Cell Adhesion and Drug Delivery Laboratory. Since she arrived at Michigan, Dr. Eniola-Adefeso has received several honors and awards, including the NSF CAREER Award, American Heart Association Innovator Award, and most recently, the BMES MIDCAREER Award. She is a fellow of the American Institute for Medical and Biological Engineering (AIMBE) and the Biomedical Engineering Society and serves as Deputy Editor for Science Advances. Her research is currently funded by multiple grants from the NIH NHLBI, American Heart Association, and the National Science Foundation.

**The Chemical Engineering program at UC San Diego has established this named lectureship in honor of Jan Talbot, a faculty member in Chemical Engineering (now emeritus) and the director of the program at UCSD for about 20 years.*