

**MIT Chemical Engineering Department**

**Fall 2020 Seminar Series**

*<http://cheme.mit.edu/seminar-series/>*

# **Blood is a Tissue: Implications in the Design and Clinical Translational of Vascular-Targeted Drug Carriers**



**Dr. Omolola (Lola) Eniola-Adefeso**  
**University Diversity and Social Transformation Professor of Chemical Engineering; Vice-Chair for Graduate Studies in Chemical Engineering, University of Michigan**

**Friday, December 4, 2020**  
**3:00pm**

**<https://mit.zoom.us/j/93337572116>**

**Abstract:** Localized delivery of therapeutics offers 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. Existing literature has focused on identifying target epitopes and the degradation/drug release characteristics of a wide range of drug-carrier formulations. 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 optimal drug carrier geometry for active and passive use of VTC in treating many inflammatory diseases.