NJIT New Jersey Institute of Technology

BME

Department of Biomedical Engineering

Graduate Seminar

Dr. Alexander Buffone, Jr., Ph.D.

Research Associate, Department of Bioengineering,

University of Pennsylvania

Subject: Engineering the Cellular Surface to Control Migration in Chronic Conditions

Abstract:

Chronic medical conditions including heart disease, hypertension, cancer, diabetes, and chronic obstructive pulmonary disease (COPD) are responsible for 7 in 10 of the deaths per year in the United States. Gaining precise control over the mechanisms of cellular migration is a critical factor in combating these chronic diseases and may help to reduce disease mortality. To this end, the overarching goal of my research program is to identify unique targets on the cellular surface which control cellular motion and through precision genetic engineering, modulate their interactions with the endothelium. This talk will focus on two new frontiers from which immunotherapies could be developed to provide therapeutic benefit for controlling inflammation, cancer, and the development of chronic conditions. First, I will identify, through genetic manipulation, the critical glycan structures of the immune and cancer cell glycocalyx, which acts as a barrier between migrating cells and the endothelium and regulates their interactions. Second, I will illustrate a novel mode of cellular motility in which certain cells are able to efficiently migrate against the direction of shear flow in the vasculature and in turn, transmigrate through the endothelium and traffic to distal sites more rapidly.

Bio:

Dr. Alexander Buffone, Jr. is currently a Research Associate in Bioengineering at the University of Pennsylvania. He graduated with his Ph.D. in Chemical and Biological Engineering from SUNY Buffalo and has had previous appointments as a Postdoctoral Scholar at Roswell Park Cancer Institute and as a Visiting Scholar at the University of California, San Francisco (UCSF). His current research interest revolves around the precise control of immune and cancer cell recruitment through genetic engineering to lessen disease severity and improve human health and lies at the intersection of immunology, glycobiology, and cancer research. Dr. Buffone's work has been recognized in multiple outlets including an interview in the Journal of Cell Science and highlights in several curated research collections and press coverage. Dr. Buffone is currently the recipient and co-investigator of an R21 from NIGMS and was previously funded as a Postdoctoral scholar on the NIH Program of Excellence in Glycosciences (PEG) P01.

Date and time: Wednesday Feb 3rd, 2021 @ 2:30 p.m.

WebEx Link: https://njit.webex.com/njit/j.php?MTID=m04f15096a84ee26f01f25e7608d428b6