



BME COVID-19 SEMINAR SERIES

Mark Calhoun, PhD
Post-Doctoral Scholar
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Date: Monday, April 19th, 2021

Time: 1:30 p.m.

Location: Virtual - Zoom

Faculty Host: Warren Grayson, PhD



Motivational Novel Treatment Approaches with Glioblastoma Mechanobiology

Abstract: Glioblastoma is a highly lethal brain tumor with dismal prognosis where novel therapeutic approaches are likely to have a strong impact on patient survival. Glioblastoma progression causes notable changes in the mechanical microenvironment and it is not clear how this mechanical microenvironment in turn acts on glioblastoma cells in a potential feedback loop. By first elucidating how glioblastoma cells respond to the mechanical microenvironment, we aim to target mechanotransduction events towards slowing or destroying tumor cells. In this talk, I will discuss my work in understanding how the mechanical microenvironment affects glioblastoma cells. Results will highlight the role of interstitial fluid pressure and compressive solid stress on glioblastoma cell survival, migration, and transcriptomic signaling. I will also provide a brief overview of future directions.

Bio: Dr. Mark A. Calhoun is a Postdoctoral Scholar in the Neurological Biomaterials and Therapeutics Laboratory in the Department of Biomedical Engineering at Duke University where he began in 2017. His current work with Dr. Ravi Bellamkonda focuses on understanding how bioelectric stimulation affects Schwann cells in the context of peripheral nerve repair. He earned his Ph.D. in Biomedical Engineering under the guidance of Dr. Jessica Winter from the Ohio State University. There he studied how biomechanical stimuli alter glioblastoma cell phenotype in the context of tumor progression. He received his B.S. in Biomedical Engineering from Rose-Hulman Institute of Technology in 2012. His research has been supported in part through fellowships from Pelotonia and HHMI. Additionally, he is the recipient of honors and awards including a BMES Travel Award, Board of Trustees Student Recognition Award, and being named to MIT's 2019 Rising Stars in Biomedical.