



CASE WESTERN RESERVE
UNIVERSITY
Case Comprehensive
Cancer Center



Cleveland Clinic

SEMINAR SERIES

Presented by the Emerging Cancer Scholars Exchange Program



OCT 16,
2026



12:00
p.m.



Wolstein Research Building
Auditorium (1-413)
2103 Cornell Road
Cleveland, OH 44106



“Fueling the Enemy: How Cell-to-Cell Mitochondrial Transfer Drives Breast Cancer”

Brock Humphries, PhD

Research Assistant Professor of Radiology,
University of Michigan Medical School

Dr. Brock Humphries is a Research Assistant Professor of Radiology at the University of Michigan, where he leads the Humphries Lab within the Center for Molecular Imaging and the Rogel Cancer Center. His research focuses on how the tumor microenvironment, mitochondrial biology, and cell metabolism drive breast cancer heterogeneity, progression, and metastasis. His lab uses live-cell imaging, biosensors, and mouse models to study how mitochondria influence oncogenic signaling in tumor cells. A central theme of his current work, and the focus of this seminar, is the discovery that stromal cells can directly transfer mitochondria to triple-negative breast cancer cells, enhancing pro-tumorigenic Akt and ERK signaling and promoting tumor aggressiveness. His lab also studies mitochondrial dynamics as a regulator of tumor-initiating cells (also known as cancer stem cells), as well as how the extracellular matrix shapes signaling heterogeneity and chemoresistance in breast cancer. Dr. Humphries has authored numerous peer-reviewed publications on mitochondrial dynamics, cancer cell signaling, and the tumor microenvironment, and his work has received support from the Department of Radiology, NIH, U-M Rogel Cancer Center, and the American Cancer Society. His long-term goal is to translate insights into mitochondrial and stromal-cancer interactions into therapies for treatment-resistant breast cancer.

case.edu/cancer/events/seminar-series

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