

Dr. Fokhrul Hossain, Ph.D
Assistant Professor-Research

Education

LSU Health Sciences Center New Orleans, LA	Ph.D.	2015	Cancer Immunology
Department of Genetics, LSUHSC, New Orleans, LA	Postdoctoral	2019	Triple-Negative Breast Cancer (TNBC) Biology
The University of Alabama, Birmingham, Health Disparities Research Education program (HDREP)	Training Scholar	2020	Obesity & Health Disparities
Clinical Research Master's Program (MSCR), Tulane University, LA	MS	2022	Clinical Research

Since the completion of his postdoctoral training, Dr. Hossain has been committed to researching health disparities and translational research.

Dr. Hossain has been involved in multiple research projects in microbiology, molecular biology, adult stem cell biology, cell metabolism and cancer biology. As a part of his Ph.D. dissertation in cancer immunology, he studied the metabolism of myeloid-derived suppressor cells (MDSC) as a new therapeutic target for cancer treatment. As a postdoctoral researcher, Dr. Hossain studied the role of Notch signaling in Triple-Negative Breast Cancer (TNBC).

Research Interests

Cancer stem cells: Cancer stem cells (CSCs) are responsible for cancer initiation, progression, therapy resistance, and metastasis. However, targeting one or two signaling pathways is not successful because of the heterogeneity nature of CSCs. Metabolic plasticity is a hallmark of cancer cells adaptation, where cancer cells primarily utilize glycolytic metabolism while CSCs mainly rely on oxidative phosphorylation (OXPHOS) as their source of energy. Interestingly, CSCs can switch between OXPHOS and glycolysis depending on the microenvironments signals to establish therapy resistance. His current research focuses on the signaling molecules involved in CSCs metabolism.

TNBC health disparities: Triple Negative Breast Cancers (TNBC) are molecularly and immunologically heterogeneous, and TNBC patients suffer from higher rates of recurrence and mortality. The incidence of both obesity and TNBC in Louisiana is among the highest in the nation, particularly among African American women. Using Louisiana Tumor Registry data, Dr. Hossain reported that neighborhood concentrated disadvantage index was associated with more advanced stages of TNBC at diagnosis and poorer stage-specific survival. He also is researching the role of obesity in TNBC health disparities.