

**Otito Ojukwu, Class 2025**

Campus: Baylor University Medical Center, Dallas, TX

Research Area: Role of methyltransferase like-14 mRNA on heart function

Co-mentors: Mariappan Muthuchamy, Ph.D. and Xu Peng M.D., Ph.D.

Otito Ojukwu, a medical student at Texas A&M School of Medicine, is conducting a Medical Scholar Explorer (MSE) research project in the Department of Medical Physiology, under the mentorship of [Mariappan Muthuchamy Ph.D.](#) in collaboration with [Xu Peng M.D, Ph.D.](#) His MSE project is investigating the role of Mettl14 in heart function and impending heart failure. The N6-Methyladenine (m6A) modification is the most abundant and reversible modification on mRNA and methyltransferase like 14 (Mettl14) protein plays an essential role on mRNA modification. Our working hypothesis is that knock down expression of Mettl14 downregulates contractile and regulatory proteins in cardiac muscle thereby, decreasing heart function. This could have wide applications for patients with heart failure. Dr. Peng's lab generated a mouse line (cardiac-Mettl14^{-/-}) in which Mettl14 gene is knocked out specifically in cardiac muscle cells. We will evaluate heart function by comparing echocardiogram measurements in the control and cardiac-Mettl14^{-/-} mice groups. Additionally, we will examine the changes of transcriptome in Mettl14 knockout hearts by RNA-Seq. We anticipate that Mettl14 would decrease the contractile and regulatory proteins in cardiac muscle. If our working hypothesis is correct, our data would demonstrate that Mettl14 protein can potentially be an epigenetic regulator of heart function, which can be a therapeutic target for treatment options for patients suffering from heart failure.