SPRING 2024

Biochemistry and Molecular Biology Brown Bag Series

John Karanja Kamau

Ph.D. Student

"Lipin1 as a potential therapeutic approach for the treatment of Cardiac abnormalities in Duchenne Muscular Dystrophy"

Tuesday, March 19, 2024

11:00 AM

Room 125 Medical Sciences Building

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https://science-math.wright.edu/biochemistry-and-molecular-biology

Abstract

Lipin1 as a potential therapeutic approach for the treatment of Cardiac abnormalities in Duchenne Muscular Dystrophy

Cardiomyopathy is the leading cause of death in Duchenne muscular dystrophy (DMD) patients. DMD is caused by mutations in the dystrophin gene, which plays a major role in maintaining cardiac membrane stability and protecting it from contraction-induced damage. As a result, dystrophin mutation in DMD leads to sarcolemmal instability, inflammatory cell infiltration, cellular death, and fibrosis of the cardiac muscles, eventually leading to cardiomyopathy. Currently, there is no cure for the disease.

Lipin1 has dual functions acting as phosphatidic acid phosphatase required for lipid synthesis and as a transcriptional coactivator. Our current study shows that lipin1 is critical in maintaining membrane integrity and stability in the skeletal muscles of the mdx mouse model for DMD. In this study, we assessed the potential therapeutic effects of lipin1 in ameliorating mdx cardiac pathology using a gene delivery approach and using conditional knock in of lipin1.