Fall 2025

Biochemistry and Molecular Biology Brown Bag Series

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Graduate Teaching Assistant

"The Role of Lipin1 in Enhancing Muscle Function and Eccentric Force in Duchenne Muscular Dystrophy (DMD)"

Tuesday, October 28, 2025

11:00 AM

Location 135 Oelman Hall

Lab: Andrew Voss, Ph.D.

Boonshoft School of Medicine
WRIGHT STATE UNIVERSITY

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

Abstract

Duchenne muscular dystrophy (DMD) is a severe, progressive neuromuscular disorder caused by the absence of the dystrophin protein, leading to muscle degeneration and impaired function. Gene therapy using adeno-associated virus (AAV) to replace the large dystrophin gene is challenging. Therefore, we investigated an alternative therapeutic target: Lipin-1, a protein crucial for muscle health. We hypothesized that systemic AAV delivery of Lipin-1 would improve muscle force and reduce damage in mdx mice, a model for DMD. Our results showed that while Lipin-1 therapy did not significantly improve baseline muscle strength, it did provide partial protection against contraction-induced muscle damage. Treated mice retained 48.9% of their initial force during repeated eccentric contractions, a significant improvement over the 26.1% seen in untreated mice. These findings suggest that systemic Lipin-1 delivery is a promising complementary strategy to mitigate muscle weakness and damage in DMD.