



**FALL 2022**

**Biochemistry and Molecular Biology  
Brown Bag Series**

**Abdullah Alshudukhi**

Ph.D. Student

***“Lipin1 overexpression ameliorates the dystrophic phenotype in mdx mice by enhancing myofiber membrane integrity”***

Tuesday, October 11, 2022

11:00 AM

135 Oelman Hall

Lab: Dr. Hongmei Ren, Ph.D.



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

## **Abstract**

**Lipin1 overexpression ameliorates the dystrophic phenotype in mdx mice by enhancing myofiber membrane integrity**

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Duchenne muscular dystrophy (DMD) is a severe and progressive muscular dystrophy caused by mutations in the dystrophin gene in the skeletal muscles. The absence of dystrophin triggers instability of the plasma membrane, leading to membrane damage and regeneration of muscle fibers. Currently, there is no cure for this disease. Lipin1 is an enzyme that catalyzes the conversion of phosphatidic acid to diacylglycerol. Our data show that lipin1 mRNA and protein expression levels are dramatically reduced in skeletal muscles of the mdx mouse model of DMD. Strikingly, we found that increasing lipin1 levels in mdx mice lessened muscle fiber degeneration, improved muscle mass, and reduced muscle necrosis in mdx mice. Our data collectively suggest that lipin1 plays a major role in inhibiting muscle degeneration by improving membrane integrity in mdx mice. Further research is required to investigate how lipin1 contributes to improving the integrity, stability and function of myofibers.