



Spring 2025

**Biochemistry and Molecular Biology
Brown Bag Series**

**Widad El-zein
Medical Student**

*"RNA-Binding Protein RBM14 Rescues
ALS-Associated FUS Toxicity in Yeast"*

Tuesday, April 8, 2025

11:00 AM

Location 125 Oelman Hall

Lab: Shulin Ju, Ph.D.



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

Abstract

Amyotrophic Lateral Sclerosis (ALS) is a neurodegenerative disease characterized by the degeneration of upper and lower motor neurons in the brain and spinal cord. Fused in Sarcoma (FUS) is an ALS-associated RNA-binding protein (RBP) that pathologically aggregates in neuronal cytoplasm and leads to cell death. Mounting evidence suggests that toxic protein aggregation of FUS drives the formation of persistent pathological Stress Granules in the cell, impairing the cell's ability to respond to stress. By genetic screening, human genes have been identified that can mitigate FUS toxicity and restore cellular fitness in the model organism *Saccharomyces Cerevisiae*. RNA-Binding Motif-14 (RBM14), an RBP and cellular stress response protein is one of 12 RBPs that mitigate FUS toxicity in yeast. To better understand the mechanism underlying FUS toxicity and its role in disrupting cellular function, we will study how FUS toxicity is rescued by RBM14, focusing on its direct and indirect effects.