

# GDCB SEMINAR

4:10 p.m. • Friday, Oct. 15, 2021 • 1414 Molecular Biology Building

## 'The Role of miRNAs in Glia During Synaptogenesis'

**Abstract:** Micro(mi)RNA-based post-transcriptional regulatory mechanisms have been broadly implicated in the assembly and modulation of synaptic connections required to shape neural circuits; however, relatively few specific miRNAs that control synapse formation have been identified. Using a conditional transgenic toolkit for competitive inhibition of miRNA function in *Drosophila*, we performed an unbiased screen for novel regulators of synapse morphogenesis at the larval neuromuscular junction (NMJ). Out of a set of ten new validated regulators of NMJ growth, we discovered that 7 miRNAs function in glial cells. This is the first evidence of multiple glial miRNAs playing a significant role in modulation of synaptic growth. Further characterization of human conserved miR-92 function at the synapse indicates a role in synaptic growth and maturation. A search for conserved downstream targets for miR-92 identified a vacuolar-type ATPase (V-ATPase) VHA-55. Manipulation of miR-92 function in glial cells supports a model where glial miR-92 inhibits VHA-55 to regulate synaptic maturation and synaptic growth.

**Host:** Jeff Essner



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