Inflammation in the central nervous system (CNS) can drive diverse outcomes. Aberrant inflammation in the CNS contributes to axonal degeneration in conditions such as Multiple Sclerosis whereas experimentally driving inflammation following CNS injury can improve axon regeneration. Our lab is studying the molecular response of neurons to different types of inflammation to devise molecular strategies to promote neuroprotection and repair. We have identified neuronal miRNAs that are regulated by inflammation and that impact neuronal degeneration and regeneration. Through in silico analysis we have identified miRNA targets that mediate axonal neuroprotection and repair.