

Title: Regulatory Network of Astroglia in Synapse Formation

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Abstract:

Astroglia constitute more than half the cell population in the brain and recent studies have recognized the significant roles of astroglia in central nervous system (CNS) functions including the control of neuronal synapse formation and function. Astroglia have also been implicated in several neurodegenerative diseases such as epilepsy, Alzheimer's disease (AD), Parkinson's disease (PD) and amyotrophic lateral sclerosis (ALS) and are considered to be potential targets for clinical intervention. However, very little is known about the regulation of astroglia maturation and development and, how this modulates the synapse formation in brain. Using an integrated wet lab and computational strategy based on *in vivo* mouse models, we are developing a transcriptomics and regulatory network database of astroglia function in synapse formation. This multidimensional database will consist of data from different, important brain regions at various developmental time points during maturation of the brain in normal as well as mice genetically engineered to reflect brain malfunction. We will present results from our initial studies of baseline astroglia developmental in normal mouse brain.