

Meeting Date: 2-15-2021 at 6pm-7pm

Attendance: 18 members

Presenter: Anne Marie Bartosch

Title: Characterizing ZCCHC17 in Human iPSC Neurons

Presenter Introduction:

Anne Marie Bartosch is a postdoctoral research scientist in the Department of Pathology and Cell Biology at Columbia University Medical Center, working in the lab of Andrew Teich. She focuses on identifying master regulators of synaptic dysfunction in Alzheimer's Disease (AD) and high throughput drug screening in human induced pluripotent stem cell (iPSC) neurons. Novel bioinformatics approaches led to the Teich Lab's discovery of ZCCHC17 as a critical synaptic master regulator that decreases early in AD. Ongoing work seeks to better understand it's function in neurons and it's protective role in AD.

Presentation Notes:

-Taub Institute for Research on Alzheimer's Disease and the Aging Brain

-iPSC Neurons- adult somatic cells that are reprogrammed to induced pluripotent stem cells that are then differentiated into neurons

- Use post-mortem tissues for research, but difficult to make causal inferences.
Also use mouse models for some research.

-Interesting Review: Being Human by Andrew Sproul

-Teich used novel data mining techniques to identify master regulators of synaptic dysfunction in AD, ZCCHC17 loss is predicted to contribute to synaptic dysfunction in AD and is a master regulator of synaptic gene expression in AD.

-ZCCHC17 is an uncommonly known protein.

-ZCCHC17 protein levels decrease as AD progresses.

-ZCCHC17 Co-IP to find binding partners, preliminary validation: straining to validate viral infection, western blot to validate immunoprecipitation, proteomics: gene ontology pathways

-Beta amyloid and tau are the main IPs in AD

-RNA splicing analysis to cluster reads by commonly excised introns, Leafcutter analysis