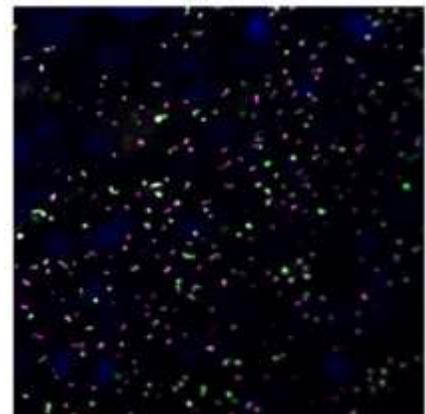
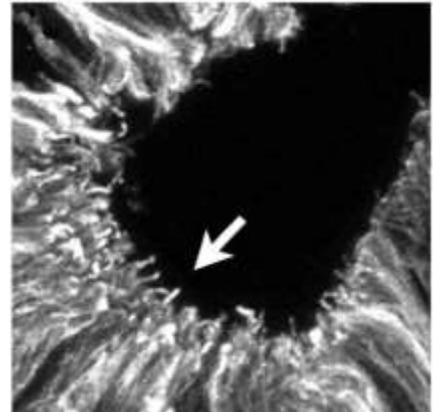

Defining Cell Signaling in the Primary Cilium of the Developing Brain

Neurodevelopmental disorders present a challenge to medicine. Our strategy focuses on understanding the signaling pathways stemming from the primary cilium in radial glia, the key neural progenitors in the developing brain. Known as the signaling antenna, the primary cilium conveys signaling molecules to regulate the developmental program of the brain.

Which signals are surveyed and detected by the cilium? What signaling cascades are triggered in radial glia? These questions have been historically challenging to answer due to technical impediments. We aim to answer these questions from a new angle by understanding what signaling proteins are expressed in the cilia of radial glia. We have harnessed the newly developed TurboID, a proximity-based biotin ligase, to catalog the protein content of primary cilia in the developing cortex. This expression database will allow us to delineate the comprehensive network of signaling pathways in the developing brain, and to answer the long-standing question of how cilia coordinate different signaling pathways to sculpt the primitive neural tube into an intricate adult brain.



Dr. Xuecai (Susan) Ge, Ph.D.

UC Merced

Friday, March 29, 2019

3:00 – 4:00 PM

Science 2, room 109

For further information: www.csufresno.edu/biology

Bio: The Ge lab is interested in understanding molecular mechanisms of neurodevelopment and its related diseases. Her lab focus on the developing cerebral cortex and cerebellum, and study how different cell signaling pathways integrate to govern neural stem cell proliferation and differentiation. Specifically, they aim to understand: How signaling pathways are integrated at the cilium, the antenna of the cell, to control cell behaviors; how the molecular signaling pathways interact with each other to control the cell proliferation and cell fate determination in the developing brain; and how to apply what is learned from cultured cells and animal models to clarify the pathogenesis of neural developmental disorders and pediatric brain tumors. <http://gelab.ucmerced.edu/>

If you need a disability-related accommodation or wheelchair access, please contact Lindasue Garner at the Department of Biology at 278-2001 or e-mail lgarner@csufresno.edu (at least one week prior to event).