



Integration of cell signaling in neural development and neurological diseases: A Prospective Overview

By: Xuecai Ge

Abstract:

Signal transduction is the choreography of the brain development. Mis-regulation of cell signaling underlies many developmental defects. My research will focus on the spatial and temporal integration of Hedgehog signaling with other signaling pathways in brain development and its related diseases.

My previous study revealed the integration of the Neuropilin-PDE4D-Hedgehog signaling in the cerebellar development and its related pediatric brain tumor. This study highlighted PDE4D as a new regulator of Hedgehog signaling and its related brain tumors. My future research will answer how PDE4D spatial localization specifically regulate Hedgehog pathway. The other focus of my lab is how Hedgehog signaling temporally integrates with phosphatidylinositol signaling to control cell proliferation and differentiation in the developing cerebellum. RNA-seq analysis revealed a surge in the expression of a group of phosphatidylinositol related proteins right after neural precursors exist cell cycle in the developing cerebellum. It is intriguing to explore how these proteins control phosphatidylinositol lipid metabolism to interplay with Hedgehog signaling and to regulate brain development.

Biography:

My interest in brain development is sparked by a neural development class while I was a graduate student at Harvard Medical School. I was fascinated by the fact that the seemingly convoluted brain developmental defects can be pinned down to problems in single molecules or simple cellular processes. My postdoc training at Stanford University in signal transduction further enhanced my interest. During my postdoc research, I discovered a new target for the treatment of pediatric brain tumor by answering a basic scientific question. In future, I aim to answer more disease mechanisms by tackling basic scientific questions. Just like I enjoyed watching the development of my 6-year-old daughter, I enjoyed tutoring undergraduate and graduate students.

Date:

Wednesday,
February 15, 2017

Time:

12:00pm

Location:

SE1 270K

**For More
Information
Contact:**

**NS Faculty
Support**
nsfacultysup-
port@ucmerced.edu