



UCMERCED
UNIVERSITY OF CALIFORNIA

School of
Natural Sciences

QSB SEMINAR SERIES 291

Genetic Dissection of signaling pathways in cultured cells

Rajat Rohatgi

Department of Biochemistry
Stanford University

Date: 11/30/18

Time: 1:30 PM

Location: GRAN 135

For more information contact:

Susan Ge
xge2@ucmerced.edu

ABSTRACT

A handful of signaling pathways mediate cell-cell communication during early development and are responsible for the vast diversity in tissue, organ and body morphology seen across animal phyla. These same pathways coordinate regenerative responses in adults and, when damaged, can cause birth defects, cancer and degeneration. One goal of my lab is to understand the molecular mechanisms that mediate signal transduction by these iconic and highly conserved developmental signaling systems. To discover new components and new mechanisms in two such pathways, the WNT and Hedgehog pathways, my lab has conducted a series of genome-wide screens in cultured cells using both CRISPR methods and insertional mutagenesis. These studies have identified new regulatory features at most levels of the pathway and also identified genes required selectively for oncogenic signaling. I will discuss our overall design strategy for these screens, as well as examples of novel signaling mechanisms. The conceptual and methodological framework resulting from this work should enable the comprehensive understanding of other signaling systems.

