"Do alternative developmental trajectories influence adult cellular responses?"

Abstract: We typically envision cell fate trajectories during development as being linear pathways where a cell progressively differentiates into its final fate. However, modern lineage tracing has revealed that a seemingly homogeneous cell population is frequently comprised of cells that took very different developmental paths. Our goal is to discover whether cells remember differential developmental trajectories on the molecular level into adulthood and whether this history influences tissue homeostasis, injury, and disease. Here, I will discuss our progress on understanding how alternative trajectories might influence heart development and regeneration.

Kristy Red-Horse is an Associate Professor in the Department of Biology at Stanford University. Dr. Red-Horse's laboratory uses cardiovascular development as a model to study the signals that instruct cell fate and guide morphogenesis during organ formation in the mammalian embryo. The current focus of the lab is to fate-map the different cellular sources that give rise to the coronary arteries of the heart and to identify the molecules that direct their migration and differentiation. The long-term goal is to use this information to better understand and treat cardiovascular diseases. Dr. Red-Horse received her PhD from the University of California, San Francisco and was a Postdoctoral Fellow at Genentech, Inc. and Stanford University. Honors include New York Stem Cell Foundation Robertson Investigator, Terman Fellow, Searle Scholar and the Judah Folkman Award for Vascular Biology.