

Distinguished Lecture Series in Physiology

Physiology and Membrane Biology

University of California, Davis



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“A new perspective on stem cells in the liver”

Our laboratory is interested in the growth, development and integrity of animal tissues, with a focus on stem cells. Wnt signaling is widely implicated in stem cell control, as a mechanism to regulate the number of stem cells in tissues. Using various cell labeling and lineage tracing methods, we have described novel populations of stem cells in various tissues, including in the liver. In that tissue, we found that hepatocytes that reside in the pericentral domain of the liver demonstrate stem cell behavior. Although these cells are functional hepatocytes, they are diploid and thus differ from the mostly polyploid mature hepatocyte population. They are active in homeostatic cell replacement and therefore distinct from oval cells, which require injury for their induction. Adjacent central vein endothelial cells provide the essential source of Wnt signals for the hepatocyte stem cells and thereby constitute the liver stem cell niche. Attempts to expand these cells in vitro are under way.

It is noteworthy that liver cancer is often characterized by loss of function mutations in negative components of the Wnt pathway, including Axin and APC. We suggest that pericentral hepatocyte stem cells, normally controlled by a paracrine Wnt signal, are precursors to liver cancer.

Genome Auditorium
Wednesday, January 18, 2017
4:10 p.m.

Host: Laura Borodinsky lnborodinsky@ucdavis.edu