



## **Visionary Seminar Series at USC**

**Wednesday, February 18, 2015 at 12 Noon**

***Ray R Irani Hall Conference Room 101***



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Developmental Biology**

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### **“Life, Death and Resurrection at the Cellular Level ”**

My laboratory studies the formation, maintenance and rejuvenation of normal adult tissues. We investigate mechanisms of stem cell maintenance, cell fate specification, cell differentiation, morphogenesis, survival, and migration using the fly ovary as a model. We recently discovered that E-cadherin promotes collective cell migration, playing three distinct roles in different subcellular locations. At the leading edge, E-cadherin functions in a positive feedback loop with Rac to stabilize forward directed protrusion whereas adhesions between collectively migrating individuals coordinates their collective behavior. Together, these results establish E-cadherin as a multi-functional core component of the cell migration machinery *in vivo*. Another crucial feature of tissue homeostasis is maintaining the proper balance of cell survival and death. In order to eliminate abnormal or dangerous cells, organisms have evolved cell suicide mechanisms, most famously the form of programmed cell death known as apoptosis. However excess cell death can cause degenerative diseases, so it is crucial to achieve the proper balance between survival and death. We have discovered that cells that have progressed far along the apoptotic pathway, past previously identified points of no return, can actively reverse the process and survive. This process, which we have named anastasis (Greek for “rising to life”) has implications for cancer, degenerative disease, and regenerative medicine.

Host: Provost Professor Scott Fraser  
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