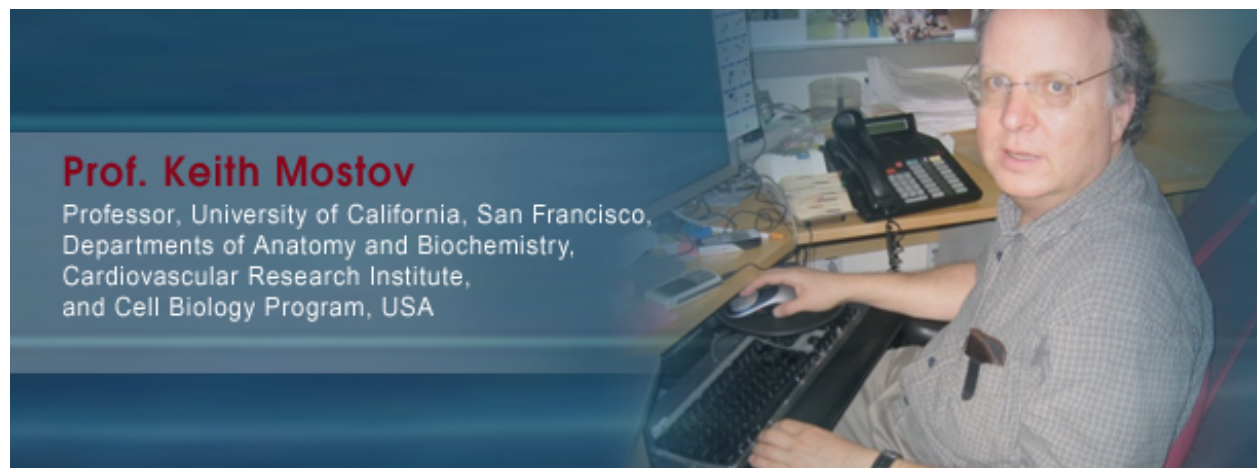




Institute of  
Molecular and  
Cell Biology

## SEMINAR ANNOUNCEMENT

DATE: 17 April 2012, Tuesday  
TIME / VENUE: 11:00AM @ Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis  
SPEAKER: Prof. Keith Mostov  
TITLE OF SEMINAR: **Regeneration and homeostasis in 3D epithelial structures**



Epithelial cells form the protective lining of most internal organs such as kidney, lung and breast. Maintaining the integrity of epithelia is vital to a variety of biological processes. Injury to epithelia, such as acute kidney or lung injury, is an important medical problem. However, it is not well-understood how dead cells are eliminated from epithelia. We found that active actin cytoskeleton remodeling of the surrounding health cells extrudes dying cells while maintaining epithelial integrity. We use 3D cysts developed from MDCK cells as our in vitro model of epithelial response to injury and regeneration. To precisely control the dying process, we developed a drug inducible system, named "suicide". Upon the induction, cells expressing "suicide" will die and be extruded within two hours. We developed mosaic cysts using wild-type MDCK cells mixed with cells expressing "suicide", and study wounding and healing processes in cysts. We found that while the "suicide" cells are dying, the surrounding healthy cells actively extrude dying cells from the epithelial wall using an actin-dependent, but myosin-independent process. We also found that post-extrusion, the remaining healthy cells re-enter the cell cycle, spread and regenerate normal epithelia cysts.

*Host: Prof. Jean Paul Thiery*

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