MPI-NAT SEMINAR SERIES


© Vanderbilt University

Andrea Page-McCaw

Vanderbilt University, Nashville, USA

Is something wrong? Mechanisms of epithelial wound

In intact healthy epithelial tissues, the cells are relatively quiet - stationary and non-invasive. The presence of a wound nearby, however, alters epithelial cell behavior to become motile, proliferative, and invasive, so that cells can repair the wound. These wound-repair behaviors lie dormant in all epithelial cells, and they are inappropriately activated in carcinomas, cancers of epithelial tissues. We are interested in how epithelial cells know there is a wound nearby: what information from the wound activates the repair behaviors? The earliest known cellular response to wounds is an increase in cytoplasmic calcium, which happens within seconds after wounding and has been observed across the animal kingdom. Taking a first-principles approach, we asked what is upstream of the calcium increase. Our model system is the Drosophila pupal notum, wounded with a laser, an ideal system for live imaging and genetic manipulations. We find that multiple different mechanisms operate to increase cytoplasmic calcium at the same time, and that each mechanism originates from a different type of cellular damage.

Thursday, 30 June 2022, 1:00 pm

Hosts: Jochen Rink & Melina Schuh

Manfred Eigen Hall

MAX-PLANCK-INSTITUT
FÜR MULTIDISZIPLINÄRE
NATURWISSENSCHAFTEN