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ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

SEMINAR

Neal Silverman, PhD

Division of Infectious Diseases and Immunology
University of Massachusetts Medical School

Hosted by Prof Bruno Lemaitre

Learning on the fly: Innate Immune Recognition and Signal Transduction in Drosophila

Insects, like *Drosophila,* rely on innate immune responses to effectively combat a wide range of infectious diseases. In response to bacterial challenge, *Drosophila* trigger NF-kB signaling pathways which drive the robust production of a battery of antimicrobial peptides. In particular, peptidoglycans, from the cell wall of most bacteria, are potent activators of the two Drosophila NF-kB pathways, the Toll and Imd pathways. The amino acid constituents of the peptidoglycan, which varies amongst different types of bacteria, determines wether the Toll or Imd pathways is activated. For example, the Imd pathways detects DAP-type peptidoglycan from Gram-negative bacteria and activates the NF-kB precursor Relish. Similar to mammalian NF-kB signaling pathways, the Imd pathway utilizes K63-polyubiquitination, in a dynamic process, involving caspase cleavage and Iap proteins, to drive NF-kB activation and potent immune responses. More recent studies have uncovered a novel feedback mechanism to regulate this inflammatory pathway through modifying the ubiquitination processes. Dr. Silverman will present the most recent findings from his group on the molecular mechanisms underlying bacterial recognition and signal transduction in the *Drosophila* Imd pathway.

Tuesday, May 20th, 2014
@ 14.00 p.m.

Conference Room **AI 1153** EPFL Lausanne