FACULTE DES SCIENCES DE LA VIE
GLOBAL HEALTH INSTITUTE

EPFL-SV-GHI-UPLEM
Station nº19
CH-1015 Lausanne

Téléphone : +4121 693 18 18
Fax : +4121 693 17 90
E-mail : bruno.lemaitre@epfl.ch
Site web : http://ghi.epfl.ch

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

SEMINAR

Ewa Chrostek

Instituto Gulbenkian de Ciência (IGC) - Portugal
Host-Microorganism Interactions

Hosted by Prof Bruno Lemaitre

" *Wolbachia* – mutualistic and pathogenic symbionts of *Drosophila melanogaster*"

Microbes form complex and intimate relationships with their animal hosts. *Wolbachia,* intracellular vertically transmitted bacteria, live within the cells of numerous arthropod species. *Wolbachia* are famous master manipulators of insect reproduction: to favour their own spread they can induce male killing, parthenogenesis or cytoplasmic incompatibility. *Wolbachia* can also protect various insects from pathogens, which makes them a potential tool for the control of vector-borne diseases. Field trials are already being conducted, involving releases of mosquitoes with *Wolbachia* in the wild. Yet, how *Wolbachia* manipulate their hosts remains largely unknown. To gain an insight into *Wolbachia*-host interaction we have recently compared different closely related *Wolbachia* variants in *Drosophila melanogaster*. The strength of antiviral protection, symbiont titres, host longevity and complete genome sequences allowed us to divide the variants into distinct groups. Moreover, analysis of an over-replicating and life-shortening *Wolbachia* variant genome led us to discover the genetic cause of its virulence. Using experimental evolution we show that mutualists can rapidly become pathogenic and that regulation of endosymbiont titres can be broken with a single genetic change in the symbiont. Finally, our results provide the first link between genotype and phenotype in *Wolbachia* endosymbionts.

Thursday, January 15th, 2015
@ 4.00 p.m.

IMPORTANT NOTICE

All external participants have to pass through SV Reception/Welcome Desk to be able to access to AI 1153.

Conference Room **AI 1153** EPFL Lausanne