GLOBAL HEALTH INSTITUTE / INSTITUT D'INFECTIOLOGIE ET DE SANTÉ GLOBALE

EPFL - SV - GHI
Station nº19
CH-1015 Lausanne
http://ghi.epfl.ch

Prof. Bruno Lemaitre, Director
bruno.lemaitre@epfl.ch
+41 21 693 18 31

Administration
cecile.hayward@epfl.ch
+41 21 693 17 57

GHI Floor Seminars

Special seminar by invited speaker

Frédéric Boccard

Institut de Biologie Intégrative de la Cellule,
CNRS, Gif-sur-Yvette, France

Functional interplay between chromatin organizers and condensins for the control of chromosome conformation and segregation in bacteria

Condensation of DNA molecules results in the formation of chromosomes. In bacteria, the chromosome is a folded structure called nucleoid. The objectives of our laboratory are to reveal the principles of chromosome organization, characterize the molecular mechanisms involved, and analyze the coordination of chromosome segregation with progression of the cell cycle in different bacterial models. Using Chromosome-Conformation-Capture methods combined with genomics, fluorescence microscopy and genetic approaches, we have disclosed in *E. coli* and *Pseudomonas aeruginosa* the three-dimensional folding of the chromosome and characterized the activity of several factors involved in chromatin organization and nucleoid conformation. At short scale, the contact map revealed the presence of domains ranging in size from 50kb to 300kb with long and highly expressed genes frequently found between domains. At large scale, long distance contacts accounted for the presence of macrodomains. By analyzing the contact frequency in several mutants, we revealed the modus operandi of chromatin organizers and condensins as well as their interplay in controlling short- and long-range DNA contacts.

Host: Bruno Lemaitre

Tuesday, December 11, 2018

12:15, SV 1717