



Prof. Stewart Cole, Director
EPFL SV / GHI
Station n°19
CH-1015 Lausanne
Switzerland

Phone: +4121 693 18 51
Fax: +4121 693 17 90
E-mail: stewart.cole@epfl.ch
Admin: cecile.hayward@epfl.ch
Phone: +4121 693 17 57
Website: <http://ghi.epfl.ch>

Global Health Institute RECRUITING SEMINAR

An eco-systems view of complex natural microbiomes

Monday, September 7th, 2015 – 13h30
EPFL – room SV1717a

Samuel Chaffron

Department of Microbiology and Immunology, K.U.Leuven, Belgium

Host: Prof. Stewart Cole

Abstract:

Recent advances in sequencing technologies are enabling the extensive characterization of microbial ecosystems at previously unseen scale and resolution. In the oceans, microbes are dominant drivers of biogeochemical processes, yet drawing a global picture of functional diversity, microbial community structure, and their ecological determinants remained a grand challenge, until recently. In the context of the Tara Oceans project, we analyzed 7.2 terabases of metagenomic data from samples collected across the globe revealing the wealth of functional diversity in the oceans and identifying environmental factors affecting most the bacterial community composition.

Within another complex ecosystem, our gut, there is still a lack of knowledge about the impact of host and environmental variables on microbiota composition within an average population. The Flemish Gut Flora Project (FGFP) is as a large-scale cross-sectional fecal sampling effort designed to identify and characterize a set of major microbiome-associated variables, and confounders, influencing the human gut microbiome at the population level. Here, exhaustive phenotyping is revealing key factors influencing the gut microbiota composition in a western population. We identified the main drivers of microbiota variation and underline the importance of stool consistency as a major covariate of microbiota composition. We also observed that total diversity has not been seen yet, underlying the importance of specific population-level human gut microbiota analyses.