

Plenary Lecture Abstract

Evolutionary Metagenomics: How Globalization and climate change affect microbiomes**Duccio Cavalieri***Department of Biology, Florence University*

The last 10 years have witnessed a revolution in microbiology. The advent of metagenomics studies has elucidated how microorganism determine organismal functions at a genomics scale. This new conceptual framework bears importantly on our knowledge of how complex biological systems evolve, leading to the holobiont theory of evolution, seen as the network of interactions between the host and the microbial communities that inhabit him. This lecture will focus on the evolutionary perspective emerging from studies on symbioses and their crucial role in the evolution of organismal functions. We will discuss the robustness and evolvability of the important symbiotic interactions of humans and insects with yeasts, fungi and bacteria, addressing the role of diet and geography as drivers of change of these interactions. Finally we will show evidence of how the plasticity of the microbiome is the main driver of the host adaptation to different diets and to rapidly changing environmental landscapes.