From Insects to Hydrozoa: Communication Strategies in Microbe-Host Interactions

Dr. Christine Beemelmanns

Hans-Knöll-Institut

Eukaryotes evolved in a world already colonized with bacteria, and both live forms have been competing and cooperating with each other ever since. It is now widely recognized that bacteria play critical roles in development, metabolism, and evolution of the eukaryotic host and often use small molecules as chemical signals to sense and respond to the world them. The continuously co-evolving relationship and communication of bacteria and eukaryotes has created an almost unlimited source of biologically active molecules, where little is known about the function and target of the microbial compounds. We are using a systematic differential metabolomic approach to analyze and characterize the molecular structures of the bacterial signals to shed more light into the evolutionary history of interkingdom communication and developmental signals. In addition, we want to harvest the bacterial small molecules repertoire to identify and characterize new drug targets.