

Deciphering the codes of communication between marine sponges and their symbionts: an integrative metabolomics-transcriptomics approach (additional support for Europe)

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Unveiling the basis of communication in biological communities is the key to unlocking organismic interactions in complex systems. The present project addresses chemical communication between marine sponges and their symbionts by tackling two foundation signaling mechanisms - chemotaxis and quorum sensing. Interactions will be studied combining innovative screening platforms with next generation sequencing analysis of active genes (transcriptomics) in the Portuguese lab and state-of-the-art fingerprinting of metabolites (metabolomics) expressed by bacterial symbionts upon contact with chemical signals derived from the sponge host and potentially competing bacteria in the laboratories in Jena. The integrative profiling dataset will reveal the co-regulation of transcripts and metabolites, sharply improving our knowledge of chemical mediators that structure the bacterial community within the sponge holobiont and the metabolic and transcription alterations they induce. Functional understanding will be obtained with state of the art bioassays.

Projektbeteiligte

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