

Chemical mediators play a key role in regulating the composition of communities and interactions of individual organisms of one or multiple species. Such ubiquitous interactions have fundamental implications for diverse habitats including soil and aquatic environments (plankton) as well as for symbioses and contacts with pathogens. Yet, the knowledge of chemical mediators is mainly limited to their function in bilateral relationships, and insight into the regulation of multi-partner interactions is urgently needed.

The aim of this collaborative research centre (CRC) is to explore fundamental regulatory processes in complex biosystems that affect our daily lives. Specifically, we aim

- to elucidate novel chemical mediators and targets that are involved in structuring complex communities and
- to understand the mechanisms that generate community structures and maintain community diversity.

Our long-term perspective is

- the directed manipulation of complex biosystems using chemical mediators, including their metal complexes.

Representative biosystems involving fungi, bacteria, microalgae, plants, animals or even human cells will be studied in increasing levels of complexity. Because a deep understanding of the molecular basis of multi-partner interactions is required for a control of biosystems, the results obtained in this CRC will have far-reaching implications. Not only will they unveil new chemical entities that may find applications as therapeutics, but they may also offer new strategies to control consortia of organisms, which will have a dramatic impact on ecology, agriculture, biotechnology and infection processes. The accomplishment of this ambitious goal is only possible in the context of a synergistic undertaking with long-term perspectives such as a CRC.



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