Daniel Leichnitz

Email: daniel.leichnitz@leibniz-hki.de

Exploitation and total synthesis of new microbial sphingolipid-type signaling molecules

This comprehensive project combines multidisciplinary approaches to analyze novel microbial signaling molecules modulating specific interkingdom interactions and to sheet light into the rules of community assembly and evolution. The proposed research aspects will particularly focus on the chemical characterization of rare bacterial sphingo- and sulfonolipids, which regulate an onset of development in one of the closest living relatives of animals, the choanoflagellate *Salpingoeca rosetta*. Leveraging interdisciplinary techniques, inspired by state-of-the-art organic, natural product and analytical chemistry, this project will undertake the research initiative to (1) proof the structural assignment of isolated unprecedented microbial sphingo- and sulfonolipids by a flexible, modular and atom-economic total synthesis, (2) enable synthetic access to functionalized derivatives, and (3) promote the isolation of novel microbial sphingo- and sulfonolipids from preselected bacterial strains.

Publications

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Supervisor

Christine Beemelmanns

Start of PhD

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Doctoral Disputation

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