Until 2022

Since the development of microbes and higher eukaryotes coevolution has resulted in specific interaction mechanisms. It is well known that **symbiotic bacteria and fungi** influence the life cycle, and are essential for the homeostasis of many eukaryotes. However, in most cases, the factors driving and influencing the cross-kingdom interactions are unknown.

We focus on the structural identification of microbial chemical mediators that are important to maintain the symbiotic life style of the producing organisms.

To study the chemical signals we apply state-of-the-art analytical tools:

- Analytical Chemistry (UHPLC, UHPLC-MS, NMR, MALDI etc.)
- Genome Mining and Molecular Biology
- Organic Synthesis (total synthesis and natural product derivatization)

Natural Products of Microbial Symbionts of Termites

Fungus-growing termites rear a symbiotic fungus as a food source in specialized combs. Termites have developed several strategies to combat invading fungi species, which can be life-threatening to the insect colony. Especially defensive symbionts support the homeostasis of the colony by secretion of selective antimicrobial and antifungal products.

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termite mount

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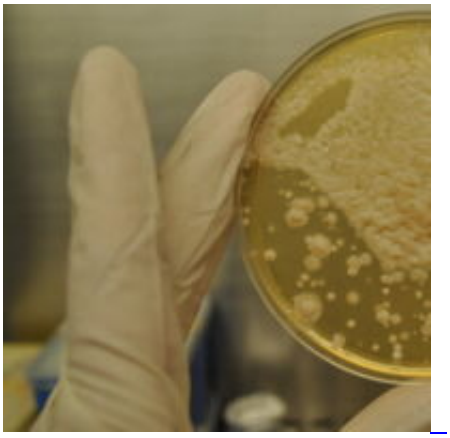
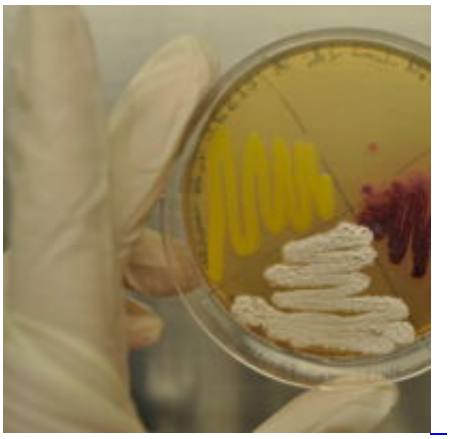
-  *Termitomyces* sp.
- 

Natural Products of Microbial Symbionts of Hydractinia

Natural products present in bacterial biofilm induce morphogenesis of larvae of the marine hydroid polyp *Hydractinia echinata.*

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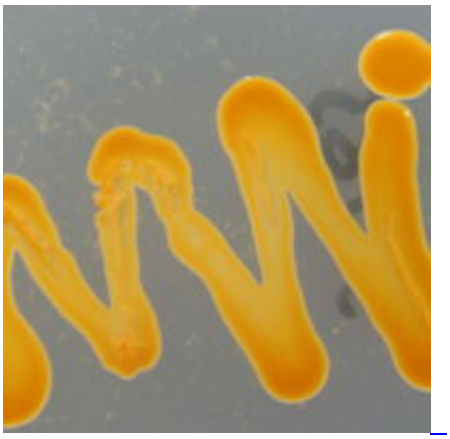
- pure isolates of marine bacteria
-  *Pseudoalteromonas sp.*
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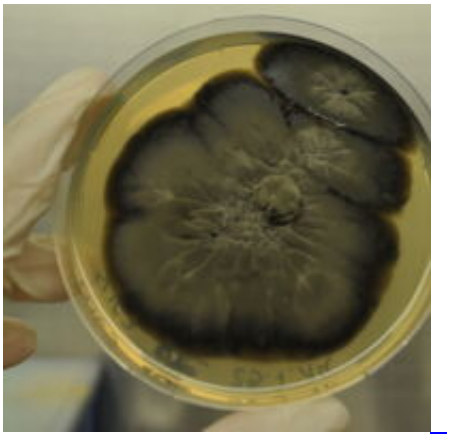

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