

Antimicrobial discovery inspired by ecological interactions.

Molloy EM, Hertweck C (2017) Antimicrobial discovery inspired by ecological interactions. *Curr Opin Microbiol* 39, 121-127.

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Abstract

Bacteria represent an unparalleled source of antibiotics used to treat infectious diseases. Yet, genome analyses have revealed that their full biosynthetic potential is much larger than expected. Valuable strategies to unearth hidden antibiotics are genome mining, pathway engineering and triggering, as well as co-cultivation approaches. Nevertheless, there is growing understanding that it is often essential to consider the ecological context and that there is a great potential for antimicrobial discovery from bacteria engaged in well-defined interactions with other organisms. Various ecological scenarios involving antimicrobial agents are outlined in this review: predator-prey and pathogenic interactions, the protection of insect assets such as offspring and cultivars, as well as host protection in symbiotic relationships with plants, invertebrates and animals/humans. The illustrative examples given reinforce the idea that examination of interactions between organisms can yield new antimicrobial compounds, and ultimately further our understanding of the function of these molecules in the environment.

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Identifier

doi: S1369-5274(16)30167-9

PMID: 29169087

