

Czech Chemical Society Lecture

Thursday, October 31, 2024, 14:00

University Campus Bohunice, Kamenice 5, Building A11 / room 132

## NATURAL PRODUCTS FROM INTERACTING MICROORGANISMS AND ANCIENT MICROBIOMES

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Microbial natural products have been an indispensable source of novel therapeutic agents. The search for new bioactive natural products has prompted scientists to exploit environmental niches in which the production of these compounds can be anticipated. Microbial predator–prey interactions are particularly rich sources of natural products. We describe one such interaction in which bacterivorous amoebae and their prokaryotic prey meet. Amoebae are voracious and ubiquitous predators to bacteria that cause constant depletion of huge bacterial reservoirs. This puts both organisms under strong evolutionary selection pressure: the bacteria have evolved mechanisms to prevent grazing and the amoebae must counteract or surmount these mechanisms in order to survive.<sup>[1,2]</sup> We are particularly interested in the biosynthesis and evolution of these amoebicidal microbial natural products and we shine light on polymicrobial natural product modifications within this context.<sup>[3-5]</sup> Recently, we have exploited means to gain access to microbial natural products diversity the past. To this end, we use ancient bacterial DNA to identify and eventually express biosynthetic genes.<sup>[6]</sup>

### References:

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- [6] M. Klapper<sup>\*</sup>, A. Hübner<sup>\*</sup>, A. Ibrahim<sup>\*</sup>, I. Wasmuth, Maxime Borry, V. G. Haensch, S. Zhang, W. K. Al-Jammal, H. Suma, J. A. Fellows Yates, J. Frangenberg, I. M. Velsko, S. Chowdhury, R. Herbst, E. V. Bratovanov, H.-M. Dahse, T. Horch, C. Hertweck, M. R. González Morales, L. G. Straus, I. Vilotijevic, C. Warinner, P. Stallforth *Science* **2023**, *380*, 619.