

MicroTalks

Monday 17 March 2025, 13:15-14:00

Department of Biological and Chemical Engineering

Building 1170-347, Aarhus University

Both in presence and virtual attendance available

How natural products from bacterial symbionts affect the development of their nematode host

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We are interested in studying the function of microbial natural products (NPs). As main model we use bacteria of the genera *Xenorhabdus* and *Photorhabdus*, symbionts of *Steinernema* and *Heterorhabditis* nematodes, respectively.^[1, 2] During the last 15 years we and others identified several microbial NPs acting as antibiotics, antifungals, toxins or signals in bacterial communications from these bacteria^[3, 4] and we were also interested whether there are microbial NPs affecting the actual nematode development ensuring the establishment and maintenance of this symbiosis. Therefore, we analyzed mutant bacteria, defective in the production of individual NPs^[5, 6] for their effect on nematode development and could confirm in detail the role of *Photorhabdus*-produced isopropylstilbene (IPS) for *Heterorhabditis* development.^[7] From *Xenorhabdus*, we could identify simple amines and amides as main factors needed for *Steinernema* development and we could also show unusual effects of two different cyclic peptides changing the development of the nematode host. The implications of these findings will be discussed in the talk.

[1] Herbert & Goodrich-Blair, *Nat Rev Microbiol.* **2007**, 5, 634.

[2] Waterfield, Ciche & Clarke, *Annu Rev Microbiol* **2009**, 63, 557.

[3] Shi & Bode, *Nat Prod Rep* **2018**, 35, 309.

[4] Shi*, Hirschmann, Shi, Ahmed, Abebew, Tobias, Grün, Cramés, Pöschel, Kuttelochner, Richter, Herrmann, Müller, Thanwisai, Pidot, Stinear, Groll, Kim & Bode*, *Nat Chem* **2022**, 14, 701.

[5] Bode*, Assmann, Happel, Meyer, Münch, Rössel & Bode*, *Bio-protocol* **2023**, 13, e4709.

[6] Bode et al., *Angew Chem Int Ed* **2019**, 58, 18957.

[7] Joyce, Brachmann, Glazer, Lango, Schwär, Clarke* & Bode*, *Angew Chem Int Ed* **2008**, 47, 1942.

DMS host: Assoc.Prof Thomas Tørring, Department of Biological and Chemical Engineering, Aarhus University

All welcome