



Maria Dell

On-line modification of processes in multimodular protein systems

To take a look into nature whenever humans needed medicine is a habit known since the beginning of mankind. One third of the FDA approved active substances is derived from natural products. Since the discovery of penicillin this field of research has been introduced to scientist all over the world. Nowadays this field of research became even more important as the bacteria surrounding us in our world have become resistant against the common antibiotics. To discover new compounds that can possibly be used as antibiotics it is not only necessary to take a look on the discovery of previous natural products but also to take a look on new and extraordinary systems in nature where bacteria or fungi produces compounds as secondary metabolites to protect themselves.

Three systems established in this lab are the interaction between *Burkholderia rhizoxinica* and *Rhizopus microspores* producing the compound rhizoxin. The interaction between the *Janthinobacterium agaricidamnorum* and *Agaricus bisporus* producing the compound Jagaricin. The secondary metabolites of *Clostridium cellulolyticum*, a bacterium extracted from soil.

These systems have in common that the biosynthesis of the compounds of interest here is based on PKS respectively NRPS gene clusters that perform interesting reactions building unique features within the natural products.

Publications

Dell M, Dunbar KL, Hertweck C (2021) Ribosome-independent peptide biosynthesis: the challenge of a unifying nomenclature. *Nat Prod Rep* , [Details](#) [PubMed](#)

Dunbar KL, Dell M, Molloy EM, Büttner H, Kumpfmüller J, Hertweck C (2021) An Unexpected Split-Merge Pathway in the Assembly of the Symmetric Nonribosomal Peptide Antibiotic Closthioamide. *Angew Chem Int Ed Engl* 60(8), 4104-4109. [Details](#) [PubMed](#)

Molloy EM, Dell M, Hänsch VG, Dunbar KL, Feldmann R, Oberheide A, Seyfarth L, Kumpfmüller J, Horch T, Arndt HD, Hertweck C (2021) Enzyme-Primed Native Chemical Ligation Produces Autoinducing Cyclopeptides in Clostridia. *Angew Chem Int Ed Engl* 60(19), 10670-10679. [Details](#) [PubMed](#)

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Dunbar KL, Büttner H, Molloy EM, Dell M, Kumpfmüller J, Hertweck C (2018) Genome Editing Reveals Novel Thiotemplated Assembly of Polythioamide Antibiotics in Anaerobic Bacteria. *Angew Chem Int Ed Engl* 57(43), 14080-14084. [Details](#) [PubMed](#)

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