

Vortragsankündigung

- im Rahmen des UniCat-Kolloquiums -

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Es spricht: **Prof. Dr. Molnar**, Natural Products Center,
University of Arizona, USA

Zeit: **Montag, 26.01.2009 15:00 Uhr**

Ort: **TU Berlin, TC Gebäude**
Institut für Chemie / FG Organische Chemie
Strasse des 17. Juni 124
D-10623 Berlin
Raum TC 014

Thema: **A serial killer, arrested movement, and CODs**
– Molecular genetics of anti-haptotactic and
insecticidal secondary metabolites from
Beauveria bassiana

Abstract: *Beauveria bassiana* is a broad host range insect pathogen that produces several secondary metabolites, including two cyclooligomer depsipeptides (CODs), beauvericin and bassianolide. Beauvericin shows antibiotic, antifungal, insecticidal and cancer antiproliferative activities, and also inhibits the directional motility of eukaryotic cells in vitro. Bassianolide is also insecticidal, shows moderate cytotoxicity, and inhibits acetylcholine-induced smooth muscle contraction. We have shown that two separate loci of the *B. bassiana* genome contain clustered genes for the biosyntheses of these two CODs. Comparison of the beauvericin and the bassianolide synthetases with the biogenetically related enniatin synthetase, characterized in the Zocher/Süssmuth laboratories, established these enzymes as iterative nonribosomal peptide synthetases that generate dipeptidol intermediates, and then produce cyclic oligomeric esters from these intermediates in an unusual recursive process. Heterologous expression of the beauvericin synthetase in *E. coli* provided a strain that is proficient in the *in vivo* production of beauvericin when fed with appropriate precursors. Both beauvericin and bassianolide were shown to be highly important virulence factors during insect pathogenesis. The biosynthesis of D-2-hydroxyisovalerate, a common precursor of the *B. bassiana* CODs, was also clarified. A D-Hiv nonproducer *B. bassiana* mutant, generated by targeted gene knockout, was used for the mutasynthesis of new beauvericin analogs that were evaluated in cell antiproliferative and cell motility inhibition assays.

Organisator: **Prof. Dr. Süssmuth (TUB)**

Gäste sind herzlich willkommen!

Prof. Dr. Matthias Drieß
Sprecher des Exzellenz-Clusters UniCat