unicat
Unifying Concepts in Catalysis

# UniCat Colloquium

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Universität Marburg

### *Introducing Lasso Peptides as a Molecular Scaffold for Drug Design*

A widespread class of therapeutically important natural products is of peptidic origin. They are either assembled on the ribosome (such as lasso peptides) followed by an extensive posttranslational modification or are produced independent of the ribosome (non-ribosomally) using large multi-modular-enzymes, the so called Non-Ribosomal Peptide Synthetases (NRPS).
One class of macrocyclic peptides we are studying is of ribosomal origin. These bioactive natural products synthesized by bacteria are composed of 16-21 canonical amino acids and show unusual and complex lasso-structures. They share an N-terminal macrolactam ring comprising 7 to 9 residue, generated upon leader peptide splitting and the condensation reaction between the generated α-NH2 group of an N-terminal residue and the carboxyl side chain of Asp/Glu at position 7, 8 or 9. The tail (8 - 13 residues) threads through the macrocycle and is trapped by steric hindrance of bulky side chains within the ring, generating an uncommon lariat knot structure of unmatched high stability. Their biological activities range from inhibition of HIV replication to blockage of the bacterial RNA polymerase. In this superfamily of lasso-structure peptides, we are interested in studying their NMR structures, enzymatic biosynthesis and in developing methods for their reengineering as a molecular scaffold for drug design.

**Wednesday, February 04, 2015 at 5:15 PM**
TU Berlin, Institute of Chemistry
Straße des 17. Juni 115, 10623 Berlin

Building C, Lecture Hall **C 264**

**Prof. Süßmuth**
Organizer

Coffee and cake will be served 30 minutes before the lecture. Guests are cordially invited to attend!
Prof. Dr. Matthias Driess - Chair of the Cluster of Excellence UniCat - www.unicat.tu-berlin.de