



SAPIENZA  
UNIVERSITÀ DI ROMA

Dipartimento di Chimica  
e Tecnologie del Farmaco

## SEMINARI SULLA SINTESI DI PRODOTTI NATURALI AD ATTIVITÀ BIOLOGICA

Si comunica che Martedì 18 Settembre dalle 11:00 alle 13:00, nell'Aula A della Facoltà di Farmacia e Medicina (Edificio CU019) dell'Università Sapienza, saranno tenute le seguenti conferenze:



**Prof. Tanja Gaich**

*(University of Konstanz, Department of Chemistry, Germany)*

***"Total Synthesis of Complex Polycyclic Natural Products beyond Biogenetic Relationships"***



**Prof. M. Kalesse**

*(Leibniz University Hannover, Institute of Organic Chemistry, Hannover, Germany)*

***"Vinylogous Mukaiyama Aldol Reactions in the Total Syntheses of Natural Products"***

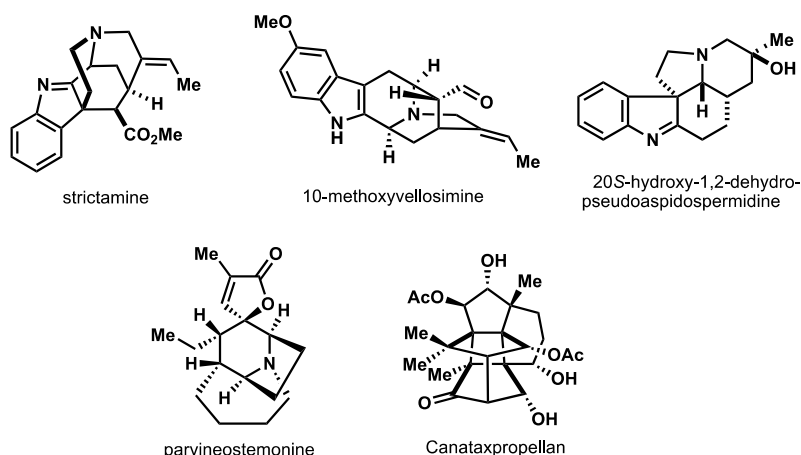
La S.V. è invitata ad intervenire.

Il Direttore  
*Prof. Bruno Botta*

Prof. Tanja Gaich

### "Total Synthesis of Complex Polycyclic Natural Products beyond Biogenetic Relationships"

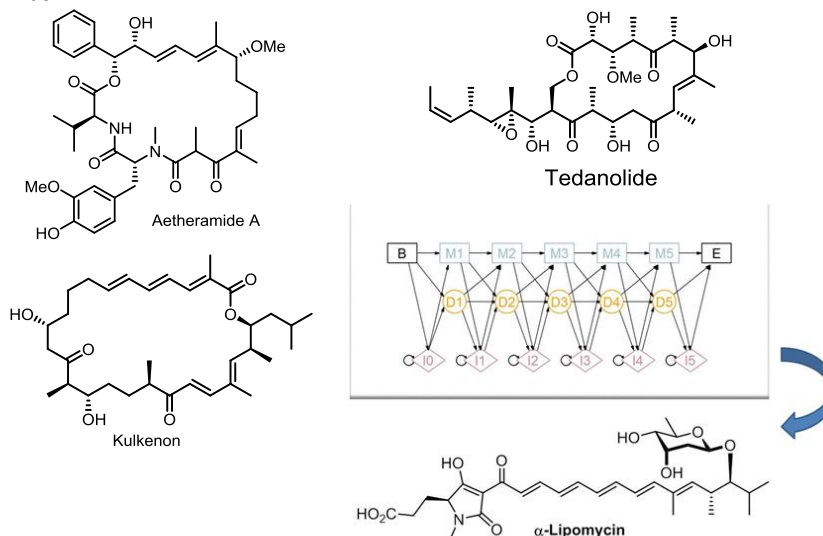
**Abstract:** Natural products as a source have proven to lead most consistently to successful development of new drugs. Nature assembles whole families of natural products via a single biosynthetic sequence. These molecular architectures are then called biogenetically related, and can be synthesized by mimicking Nature's synthetic sequence. However, this confines biomimetic synthesis to specific structure-types, thus limiting structural diversification. Expanding the synthetic network of natural products beyond biogenetic relationships overcomes these limitations, and will exemplarily be showcased in this talk.



Prof. M. Kalesse

### "Vinylogous Mukaiyama Aldol Reactions in the Total Syntheses of Natural Products"

**Abstract:** Natural products are a rich source of bioactive compounds, which are used for medical applications. In most cases, the biological activity is controlled by the overall conformation of natural products which in turn is a result of their chiral centers. We will describe our contributions towards controlling the configuration of chiral centers and the rapid assembly of polyketides using the vinylogous Mukaiyama aldol reaction. Natural products that are covered are ratjadone,<sup>1</sup> tedanolide,<sup>2</sup> angiolam,<sup>3</sup> kulkenon,<sup>4</sup> lipomycin<sup>5</sup> and aetheramide.<sup>6</sup>



[1] Total Synthesis of (+)-Ratjadone, M. Christmann, U. Bhatt, M. Quitschalle, E. Claus, M. Kalesse, *Angew. Chem.* **2000**, *112*, 4535-4538; *Angew. Chem. Int. Ed.* **2000**, *39*, 4364-4366.

[2] The Total Synthesis of (+)-Tedanolide, G. Ehrlich, J. Hassfeld, U. Eggert, M. Kalesse, *J. Am. Chem. Soc.* **2006**, *128*, 14038-14039.

[3] Synthesis of Angiolam A, M. T. Gieseler, M. Kalesse, *Org. Lett.* **2014**, *16*, 548-551.

[4] Structure Elucidation and Total Synthesis of Kulkenon, G. Symkenberg, M. Kalesse, *Angew. Chem. Int. Ed.*, **2014**, *53*, 1795-1798.

[5] Structure Elucidation and Total Synthesis of  $\beta$ -Lipomycin, O. Hartmann, M. Kalesse, *Angew. Chem.* **2014**, *126*, 7463-7466; *Angew. Chem. Int. Ed.* **2014**, *53*, 7335-7338.

[6] Total Synthesis of Aetheramide A, L. Gerstmann, M. Kalesse *Chem. Eur. J.* **2016**, *32*, 11210-11212.