

GESELLSCHAFT DEUTSCHER CHEMIKER Ortsverband Hannover

Einladung zum GDCh-Colloquium des Ortsverbandes Hannover

Das Colloquium findet um 17h c.t. im Dr.-Oetker-HS (Raum 007, Gebäude 2504) der Leibniz Universität Hannover, Institut für Physikalische Chemie und Elektrochemie, Callinstraße 3a, D-30167 Hannover statt.

24.04.2025 Prof. Dr. Sarah O'Connor Max-Planck-Institut für chemische Ökologie, Jena



Harnessing the chemistry of natural product biosynthesis

Nature makes thousands of molecules – natural products – that have many applications in medicine and beyond. Plants in particular are an extremely important source of these molecules. Synthetic biology approaches are being used with increasing success to medicinally and agriculturally important plant-derived overproduce molecules in heterologous hosts. However, to pursue such approaches effectively, we must first fully understand the chemistry and biology of the biosynthetic pathways that generate these molecules. Given the complexity of plants and plant genomics, this pathway discovery process has been a major bottleneck in harnessing the chemical power of plants. Our research aims to develop methods and resources to unlock the biosynthesis of complex molecules produced by plants. We are developing new omics methods to find these genes more efficiently. We also explore mechanisms by which these complex plant pathways have evolved to create extraordinary chemical diversity. Additionally, we also study examples in which Nature has made the same molecule twice. From these examples, we can compare and contrast two different chemical solutions that nature has evolved. We can then, in the laboratory, mix and match the two chemical pathways to design our own. Since important natural products from plants are often produced in very small quantities, or because the natural plant producers are hard to grow, it is important to develop metabolic engineering strategies to improve production of these compounds. This means that it is hard to get enough natural product to use in the clinic. Once we discover the genes that are responsible for making a natural product - for example, the anti-cancer drug vinblastine - we develop approaches to heterologously produce these products.

Prof. Dr. Jens-Uwe Grabow Vorsitz OV Hannover

Vor dem Colloquium findet ab ca. 16h c.t. eine 'Kaffeerunde' mit dem Vortragenden in der Bibliothek des PCI statt.

