



Departmental Seminar

Department of Chemistry

Monday, June 5th, 2023

Time: 14:30

Bldg. 43 Room 015

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Microbiome Metabolites: Syntheses and Surprises

The microbiome is composed of different microorganisms such as bacteria or viruses that live on or in a complex host, such as e.g. humans or plants.

Estimates suggest that bacterial cells outnumber their human host cells by as much as 10:1, leading directly to the question:

Who is in control?

Interactions, and ultimately control, of the microbiome with their host might involve the trading and trafficking of chemicals. We will present recent studies from our group investigating small molecule chemicals that serve as signals for bacterial communication,[1] microbiome cyclitols for plant chemical offense,[2] and a recent total synthesis of peyssonoside A,[3] which might be produced by the microbiome of red algae, complemented with other terpene syntheses of microbiome origin.[4]

References:

1 a) Sieber, Mathew, et al. *Science Adv.* 2021, 7, eabg2293; b) Jenul et al. *Nature Comm.* 2018, 9, 1297.

2 a) Grayfer, Yamani, et al. *JACS Au*, 2023, 1151, b) Georgiou et al. *Scientific Reports* 2021, 11, 22465.

3 Chesnokov and Gademann, *J. Am. Chem. Soc.* 2021, 143, 14083

4 a) Lardon, et al. *Angew. Chem. Int. Ed.* 2019, 58, 7004, b) Liffert, Linden, Gademann, *J. Am. Chem. Soc.* 2017, 139, 16096

Karl Gademann (1972) was educated at ETH Zürich and Harvard University, where he worked with Prof. Dieter Seebach, Prof. Eric N. Jacobsen, and Prof. Erick M. Carreira. His previous professorial appointments include the EPFL in Lausanne and the University of Basel, where he served as full professor and dean of research. He just completed his term as the department chair of the department of chemistry at UZH and is a member of the research council of the Swiss National Science Foundation.



His work has been recognized by a number of international awards, including the Latsis prize, the Novartis Early Career Award, the Ruzicka Medal, The Liebig Lecture by the German Chemical Society, and the European Young Investigator Award. In summer 2020, he was named as a Fellow of Chemistry Europe.