

Einladung zum Vortrag von

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**„Total Synthesis of Marine Polyethers: The Quest for
Giant Molecules of the Deep”**

Marine polyether natural products are some of the most complex and formidable bioactive targets confronting synthetic chemists. The gambieric acids and ciguatoxins are large polyethers produced by the dinoflagellate *Gambierdiscus toxicus*.^{1,2} The ciguatoxins are very potent neurotoxins and have considerable impact on human health, being responsible for a type of food poisoning that afflicts ~20,000 people each year. In contrast, the gambieric acids do not exhibit the neurotoxicity associated with other fused polyethers but are extremely potent anti-fungal agents.¹ The immense synthetic challenges presented by the gambieric acids and ciguatoxins coupled with their potent biological activities and limited availability makes them attractive targets for total synthesis. Over past 20 years we have been at the forefront in developing new metal-mediated reactions and novel synthetic strategies that should allow these extremely challenging targets to be synthesised in an efficient manner.³ The development of innovative strategies for the rapid and efficient construction of fused polyethers that involve iterative ring synthesis, bidirectional framework construction and fragment coupling will be discussed in the lecture. The application of these reactions and strategies to the construction of specific polycyclic fragments (3–5 rings) that appear as sub-units in the natural products gambieric acid A and CTX3C will be presented.

References

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2. Murata, M.; [Legrand, A. M.](#); Ishibashi, Y.; Fukui, M.; [Yasumoto, T.](#) *J. Am. Chem. Soc.* **1990**, *112*, 4380. [Satake, M.](#); [Fukui, M.](#); [Legrand, A. M.](#); [Cruchet, P.](#); [Yasumoto, T.](#) *Tetrahedron Lett.* **1998**, *39*, 1197.
3. Clark, J. S.; Kimber, M. C.; Robertson, J.; McErlean, C. S. P.; Wilson, C. *Angew. Chem. Int. Ed.* **2005**, *44*, 6157. Clark, J. S.; Romiti, F.; Sieng, B.; Paterson, L. C.; Stewart, A.; Chaudhury, S.; Thomas, L. H. *Org. Lett.* **2015**, *17*, 4694. Clark, J. S.; Conroy, J.; Blake, A. J. *Org. Lett.* **2007**, *9*, 2091.

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