

Exploiting Molecular Conformation for Biomimetic Function and Reactivity

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Nature solves many challenges of molecular reactivity and molecular communication by making use of exquisite control of molecular conformation. The lecture will explore the use of synthetic molecules with well-defined conformations to induce new modes of reactivity of value in synthesis for example, the metal-free arylation and vinylation of enolates^[1,2] and amines^[3], or the synthesis of medium rings.^[4,5] It will also explore the ways in which structures with switchable global conformation can be exploited in systems that exhibit artificial signal transduction in the form of remote stereocontrol and in the design and construction of artificial transmembrane receptors.^[6,7]

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- [7] F. G. A. Lister, B. A. F. Le Bailly, S. J. Webb, J. Clayden, *Nature Chem.* **2017**, *9*, 420–425.

Brief Biography:

Jonathan Clayden, Professor of Chemistry, University of Bristol

Jonathan Clayden was born in Uganda in 1968, grew up in the county of Essex in the East of England, and was an undergraduate at Churchill College, Cambridge. In 1992 he completed a PhD at the University of Cambridge with Dr Stuart Warren. After postdoctoral work at the *École Normale Supérieure* in Paris with Prof. Marc Julia, he moved in 1994 to the University of Manchester as a lecturer. In 2001 he was promoted to a professorship, in 2015 he moved to the University of Bristol. His research interests encompass various areas of synthesis and stereochemistry, particularly where conformation has a role to play: asymmetric synthesis, atropisomerism, organolithium chemistry, and biomimetic function using dynamic foldamers. He has published over 300 papers, and is a co-author of the widely used undergraduate textbook on Organic Chemistry (2nd edn, 2012). His book "Organolithiums: Selectivity for Synthesis" was published in 2002. He was awarded the Royal Society of Chemistry's Merck Award in 2011 and Tilden Prize in 2018, and the *Prix Franco-Britannique* by the *Société Française de Chimie* in 2019. He has held a Royal Society Wolfson Research Merit award and two European Research Council Advanced Investigator Grants, and was elected Member of the *Academia Europaea* in 2022.