Gold-Catalysed Cyclisation Reactions of Functionalised Allenes: Preparative Applications and Mechanistic Aspects

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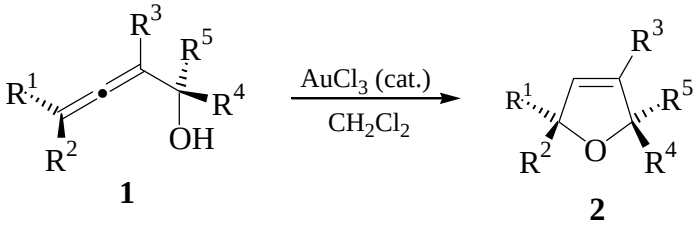
The metal-mediated synthesis of functionalised allenes and their stereoselective transformation into cyclic products is of increasing interest in Organometallic Chemistry[2]. Recently, we have introduced gold(III) chloride as a highly efficient catalyst for the cycloisomerisation of α-hydroxyallenes **1** to 2,5-dihydrofurans **2**[3]. With as little as 1 mol-% of the catalyst, the reaction occurs under complete transfer of the axial chirality of **1** to the newly formed stereogenic centre of the heterocycle **2**, and it is therefore highly useful for the synthesis of natural products and pharmaceutically active compounds bearing a 2,5-dihydrofuran or tetrahydrofuran ring.



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In this presentation, preparative applications of the new catalytic cyclisation method, as well as experimental and theoretical studies on its mechanism, will be discussed.

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[2] N. Krause, A. Hoffmann-Röder, J. Canisius, *Synthesis* , 2002, 1759.
[3] A. Hoffmann-Röder, N. Krause, *Org. Lett.* 2001, **3**, 2537.