Gold Catalysis for Organic Synthesis

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Homogeneous gold catalysis is now recognized as a “convenient tool for generating molecular complexity”\(^1\) and diversity.\(^2\) The major part of the synthetic chemistry which has been developed so far in this field is intimately linked to the \(\pi\) Lewis acidic property of cationic gold(I) and gold(III) species.\(^3\) The latter have indeed proven to be particularly useful catalysts for the functionalization of carbon \(\pi\) systems such as alkynes or allenes by addition of various oxygen, nitrogen and carbon nucleophiles. In addition to its acidic character, gold can potentially act as an electron donor thus allowing the stabilization of intermediate cationic species and favoring reaction pathways not accessible with other Lewis acids.

During the past six years, we have been actively involved in this domain and have developed a series of new methods allowing the formation of various hetero- and carbocyclic systems by taking advantage of the singular reactivity of cationic gold species. This lecture will highlight some of our recent contributions to the field.\(^4\)

References