

# PHOTOREDUCTIBLE Au(III) COMPLEXES FOR CATALYSIS

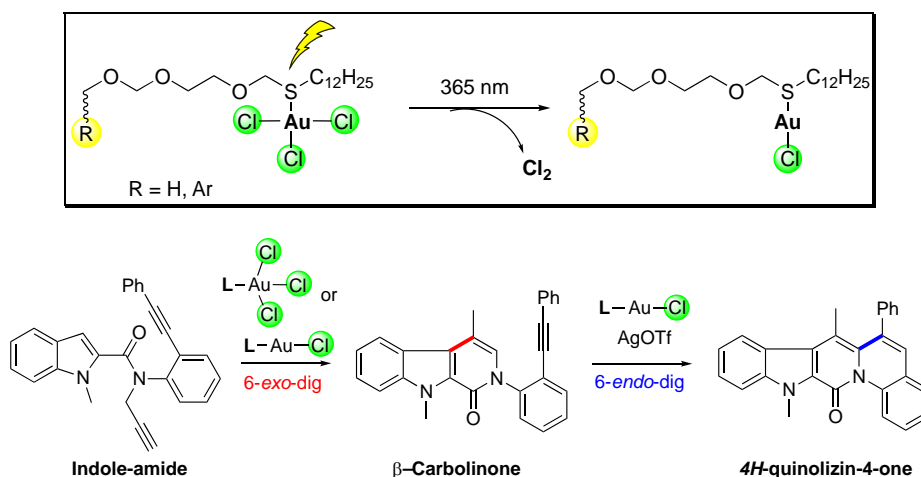
Brigitte Bibal

Université de Bordeaux, Institut des Sciences Moléculaires UMR 5255, Talence, France

Reductive elimination in gold(III) complexes is a key transformation towards the creation of carbon-carbon or carbon-halide bonds. [1]

We investigated this process for complexes between thioethers and gold(III) chloride, that appeared to be fast under photochemical conditions ( $\lambda = 365\text{-}400\text{ nm}$ ). [2]

The mechanism of gold(III) photoreduction is discussed based on a kinetic study and the chemical trap of chlorine species:  $\text{Cl}_2$ , radical  $\text{Cl}^\bullet$  and possibly  $\text{Cl}^+$ . The catalytic activity of these thioether gold(III) chloride complexes and the corresponding gold(I) ones obtained by *in situ* photoreduction were evaluated towards the cyclization of *N*-propargylic amides towards oxazoles and towards a new cascade reaction allowing the synthesis of a 4*H*-quinolizin-4-one in high yields and illustrating the convenience of these photoreducible complexes in homogeneous gold catalysis



[1] (a) Wolf, W. J.; Winston, M. S.; Toste, F. D. *Nat. Chem.* **2013**, *6*, 159-164; (b) Kaphan, D. M.; Levin, M. D.; Bergman, R. G.; Raymond, K. N.; Toste, F. D. *Science*. **2015**, *350*, 1235-1238.

[2] (a) C. Mongin, I. Pianet, G. Jonusauskas, D. M. Bassani, B. Bibal, *ACS Catal.* **2015**, *5*, 380-387; (b) Z. Cao, D. M. Bassani, B. Bibal, *Chem. Eur. J.* **2018**, *24*, 18779-18787 (hot paper).