NOVEL $C_{(NHC)}CC_{(NHC)}$-NHC GOLD PINCER COMPLEXES AND STUDY OF THEIR CATALYTIC ACTIVITIES

Hugo Valdés, Xavi Rivas

Institut de Química Computacional i Catàlisi (IQCC) and Departament de Química, Universitat de Girona, Campus de Montilivi, Girona E-17003, Catalonia, Spain

Pincer complexes have stood out as useful tools in catalysis.[1, 2] In particular, pincer ligands with N-heterocyclic carbene (NHC) fragments have exhibited some interesting features, since NHCs are very strong donor ligands, which enhance the nucleophilicity of the metal center, thus generating very active catalysts.[3] However, in the realm of Au(I) and Au(III) chemistry, the use of NHC-pincer ligands remains scarcely explored, and only a few examples have been described.[4] Actually, in the literature there are no examples of $C_{(NHC)}$-$C_{(Aryl)}$-$C_{(NHC)}$ gold pincer complexes, for which interesting reactivity is envisioned. Probably one of the reasons is the lack of synthetic strategies to coordinate the metal fragment to such type of pincer ligands. Up to now there are two main strategies to prepare $C_{(NHC)}$-$C_{(Aryl)}$-$C_{(NHC)}$ metal-pincer complexes. The C-H or C-halogen bond activation, and the transmetalation from Zr or Li derivatives. Both strategies have drawbacks, for example the bond activation requires high temperatures, while the transmetalation reaction requires very anhydrous conditions and the use of organolithium compounds.

Here we report a new approach to obtain $C_{(NHC)}$-$C_{(Aryl)}$-$C_{(NHC)}$ gold pincer complexes (Figure 1a). The activation of an aryl-diazonium salt (**L-N_2**) through an oxidative addition of the C-N_2 bond enabled the coordination of the pincer ligand to the gold atom. The synthesis of **L-N_2** was carried out in three steps starting from 1,3-bis(bromomethyl)-2-nitrobenzene in 64% yield. Finally, the catalytic activity of the complexes, was evaluated in the synthesis of oxazolines and phenols (Figure 1b).

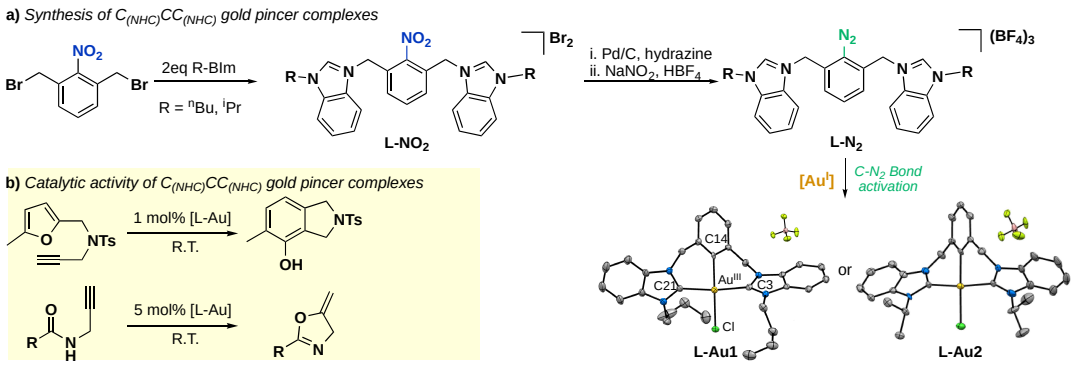

Figure 1. a) Synthesis and b) catalytic activity of $C_{(NHC)}$-$C_{(Aryl)}$-$C_{(NHC)}$ gold(III)-pincer complexes.

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