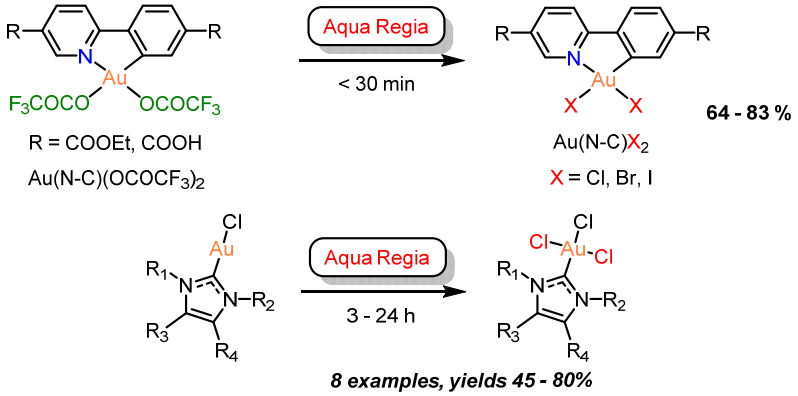
AQUA REGIA IN GOLD(III) CHEMISTRY

Vladimir Levchenko, Cristiano Glessi, Sigurd Øien-Ødegaard and Mats Tilset*

University of Oslo, Department of Chemistry, N-0315 Oslo, Norway
vladimir.levchenko@kjemi.uio.no

Our group has developed robust synthetic methods that give access to a wide range of cyclometalated Au(III) complexes based on the phenylpyridine core.[1,2] Investigations of their catalytic and stoichiometric reactivity[3–5] have established that these are promising complexes for carbon-carbon double and triple bond functionalization reactions.

The phenylpyridine motif can be tuned sterically and electronically through manipulation of substituents. In this contribution, we describe how new members of this class of cyclometalated Au(III) complexes can be synthesized by *reactions performed in aqua regia (!)* at ambient temperature.



The scope of the reactions in *aqua regia* has been further expanded by reactions with (NHC)Au(I) complexes, which were shown to be cleanly oxidized to (NHC)Au(III) congeners.

[1] Shaw A.P., Tilset M., Heyn R.H., Jakobsen S. *J. Coord. Chem.* **2011,** *6*, 38–47.

[2] Langseth E., Görbitz C. H., Heyn R. H., Tilset M. *Organometallics* **2012,** *31*, 6567–6571.

[3] Langseth E., Nova A., Tråseth E.A., Rise F., Øien S., Heyn R. H., Tilset M. *J. Am. Chem. Soc.* **2014,** *136*, 10104–10115.

[4] Holmsen M.S., Nova A., Balcells D., Langseth E., Øien-Ødegaard S., Tråseth E. A., Heyn R. H., Tilset M. *Dalton Trans.* **2016,** *45*, 14719–14724.

[5] Holmsen M. S., Nova A., Balcells D., Langseth E., Øien-Ødegaard S., Heyn R. H., Tilset M. *ACS Catal.* **2017**, *7*, 5023-5034.