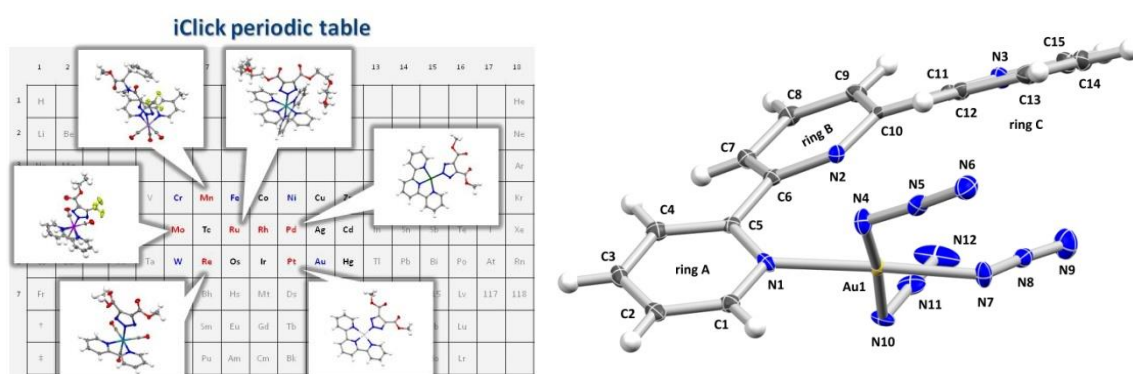


# Periodic table of the iClick reaction: Scope and limitations of a novel method for metal complex bioconjugation

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The iClick reaction of metal azido complexes with electron-poor alkynes is a powerful method to generate five-membered heterocyclic ligands directly in the inner coordination sphere of a metal center.<sup>[1]</sup> In the last couple of years, we have intensively studied the reactivity of Mo, W, Mn, Re, Ru, Pd, and Pt azido complexes in this context and elucidated clear trends in the rate constants of the iClick reaction that help to predict the utility of different metal azide-alkyne combinations for bioconjugation.<sup>[2-8]</sup>



Very recently, this work was also extended to Ni(II) and Au(III), which has enabled the most extensive correlation among isoelectronic  $d^8$  complexes possible so far. Furthermore, using cyclometalating  $C^N^N$  and  $N^C^N$  pincer ligands, we have been able to apply the iClick reaction to terminal alkynes at rates suitable for biological applications for the first time. At times, however, these studies also give surprising results, as in the case of  $[AuCl(terpy)]Cl_2$ , which did not yield the expected gold(III) azido complex but instead  $[Au(N_3)_3(terpy-\kappa^1-N^1)]$ , a very rare example of 2,2':6',2''-terpyridine (terpy) in a monodentate coordination mode.<sup>[6]</sup> In the present contribution, we will explore both standard and non-standard reactivity and also present initial data on the use of metal-azido complexes as "light-up" probes for bioimaging.<sup>[8]</sup>

## References

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