Starting from the first papers\textsuperscript{1,2} which demonstrated the potential of gold catalysis for organic transformations with a high increase of molecular complexity, homogeneous gold catalysis has emerged to a precious, frequently used tool in organic synthesis.\textsuperscript{3,4} Among the many new methods and reactivity patterns developed in the last 18 years in the field, a highly useful and versatile aspect was the in situ generation and synthetic exploitation of $\alpha$-ketocarbene gold(I) intermediates from alkynes and pyridine-$N$-oxides as reagents by Liming Zhang.\textsuperscript{5,6} These innovative methods have also been used\textsuperscript{7} and further developed by our group.\textsuperscript{8,9}

Now we were interested in the use of the corresponding $\alpha$-iminocarbene gold(I) intermediates for complex organic conversions. Instead of an $O$-transfer reagent, now an $N$-transfer reagent will be needed.\textsuperscript{10} This indeed can be achieved by a number of different nitrogen heterocycles as building blocks for different types complex and highly functionalized products (for examples, see Figure 1).

Furthermore, even a selective access to specific quinoxaline $N$-oxides, which are not selectively accessible by oxidation of quinoxalines, can be opened by such methods. This is quite remarkable, as usually such $N$-oxides in transition metal catalysis are reactive reagents rather than isolable products.

Figure 1. New reactivity patterns involving $\alpha$-iminocarben gold(I) intermediates (PG = protecting group)

References
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