Recent Advances In Transition Metal-Catalyzed [2+2+2] cycloadditions

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Host: Prof Denis Fichou

Abstract

For several years, we have been interested in new developments of transition metal-catalyzed [2+2+2] cycloadditions. Our efforts have been concentrated mainly on the search of new efficient catalytic systems, new unsaturated partners and the finding of conditions for enantioselective cycloadditions.

We recently discovered that the family of tetrakistrimethylphosphinecobalt complexes displayed a very efficient catalytic activity in such a process. We also disclosed the first and efficient asymmetric route to 1,2-dihydropyridines by a rhodium-catalyzed [2+2+2] cycloaddition of diynes and sulfonimines. Finally, we have proposed an asymmetric approach relying on the chiral anion strategy.

An overview of these results will be presented and discussed.