Enantioselective Ni(0)-Catalyzed Annulation of Pyridones

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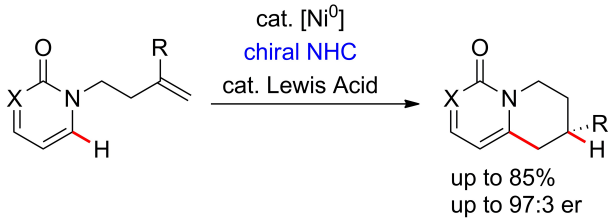
Pyridones are common structural motifs in natural products exhibiting diverse biological activity and hence the pyridine core is found in a variety of pharmacologically potent compounds.[1] In particular 1,6-carboannulated pyridones are found in several biologically active natural products and furthermore annulated 2-pyridones can serve as access to valuable bioactive indolizidine and quinolizidine alkaloids.[2]

Based on the work of Nakao and Hiyama our group has developed a Nickel catalyzed *endo*-selective annulation protocol of *N*-alkenyl-2-pyridones.[3,4] Cooperative Lewis Acid/Ni(0)-catalysis and application of *N*-heterocyclic carbene ligands enabled C-H activation and subsequent regioselective cyclization under formation of a stereocenter. A variety of known chiral NHCs failed to achieve a highly enantioselective transformation, highlighting the need for further ligand development in this area.

We have developed a class of chiral NHCs which enable the formation of valuable 1,6-annulated 2-pyridones in high enantioselectivity.



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