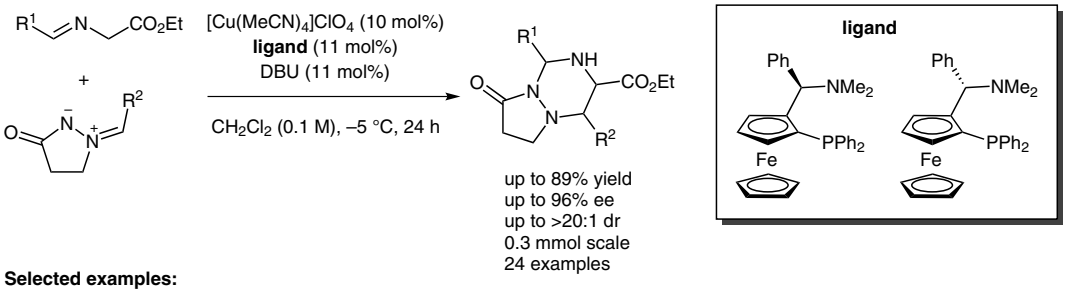
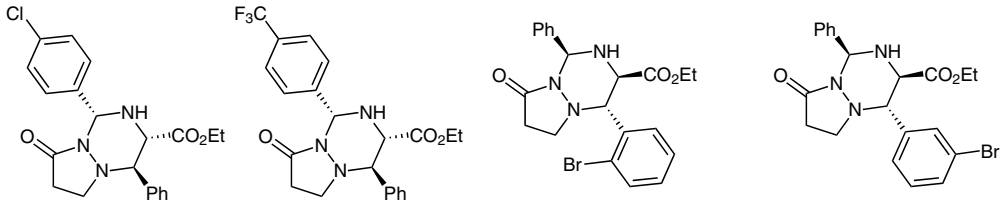
H. GUO,* H. LIU, F.-L. ZHU, R. NA, H. JIANG, Y. WU, L. ZHANG, Z. LI, H. YU, B. WANG, Y. XIAO, X.-P. HU,* M. WANG (CHINA AGRICULTURAL UNIVERSITY, BEIJING AND DALIAN INSTITUTE OF CHEMICAL PHYSICS, P. R. OF CHINA)

Enantioselective Copper-Catalyzed [3+3] Cycloaddition of Azomethine Ylides with Azomethine Imines
Angew. Chem. Int. Ed. **2013**, *52*, 12641–12645.

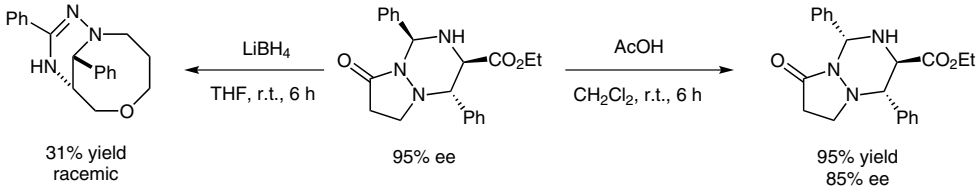
[3+3] Cycloaddition of Azomethine Ylides with Azomethine Imines



Selected examples:



Product derivatization:



Significance: With the use of a [3+3] cycloaddition the authors were able to generate biologically active hexahydro-8*H*-pyrazolo[1,2-*a*][1,2,4]triazin-8-one derivatives. In a highly diastereo- and enantioselective manner, azomethine ylides were reacted with azomethine imines in the presence of copper and ferrocenyl chiral P,N-ligands.

Comment: [3+3] And [3+4] cycloadditions with azomethine ylides are not as well known as their [3+2] counterparts. Pioneering work in the use of 1,3-dipolar [3+2] cycloadditions with azomethine ylides was made by the groups of Jørgensen (*Angew. Chem. Int. Ed*. **2002**, *41*, 4236) and Zhang (*J. Am. Chem. Soc.* **2002**, *124*, 13400). In the presence of $LiBH_4$ the product of the [3+3] adduct rearranged to an unexpected compound. This interesting molecule was formed as a single diastereomer, but was found to be racemic.

SYNFACTS Contributors: Mark Lautens, Zafar Qureshi
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