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 Enantioselective Copper-Catalyzed [3+3] Cycloaddition of Azomethine Ylides with Azomethine Imines
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[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-8H-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 LiBH₄ 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.

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