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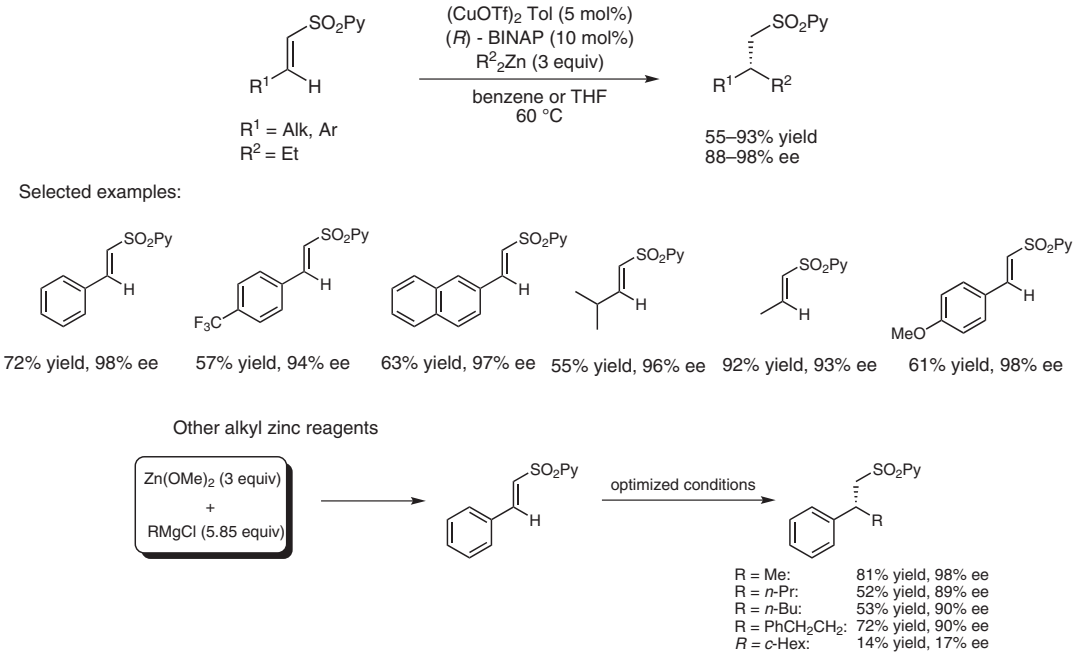
Catalytic Enantioselective Addition of Diorganozinc Reagents to Vinyl Sulfones

Org. Lett. **2008**, *10*, 2315-2318.

Enantioselective Addition of Organozinc Reagents to Vinyl Sulfones



Significance: The authors have developed a simple protocol for the addition of organozinc reagents to vinyl sulfones. This procedure complements the already reported procedures including the reduction of β,β-dialkylsubstituted sulfones (J.-N. Desrosiers, A. B. Charette *Angew. Chem. Int. Ed.* **2007**, *46*, 5955; T. Llamas, R. Gómez Arrayás, J. C. Carretero *Angew. Chem. Int. Ed.* **2007**, *46*, 3329) and organometallic reagents to vinyl sulfones (K. Yoshida, T. Hayashi *J. Am. Chem. Soc.* **2003**, *125*, 2872; P. Mauleón, J. C. Carretero *Org. Lett.* **2004**, *6*, 3195). Furthermore, the authors have cleverly demonstrated the formation of β,β-dialkylsubstituted products with excellent enantioselectivities.

Comment: There are several reported procedures for the development of asymmetric 1,4-addition to vinyl sulfones which utilize several organometallic reagents (vida infra). This report extends the work of the previously reported organozinc addition to imines and nitroalkenes published by this group. After screening a variety of ligands, solvents, and temperatures the optimized conditions proved noteworthy. In addition, the authors demonstrated that other organozinc reagents prepared from the corresponding Grignard and zinc salts could be utilized giving moderate to good yield and high enantioselectivity.

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Synfacts 2008, 8, 0830-0830 Published online: 23.07.2008
DOI: 10.1055/s-2008-1078554; **Reg-No.:** H07508SF