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A General Strategy for Regiocontrol in Nickel-Catalyzed Reductive Couplings of Aldehydes and Alkynes J. Am. Chem. Soc. 2010, 132, 6304-6305.

Regiocontrol in the Nickel-Catalyzed Aldehyde-Alkyne Reductive Coupling

$$\begin{array}{c} P_{1} \\ P_{2} \\ P_{3} \\ P_{4} \\ P_{5} \\$$

Significance: The reductive coupling of alkynes with aldehydes is a common method for preparing allylic alcohols. When unsymmetrical alkynes are used two regioisomeric products can be formed. Regiocontrol is possible with a strong steric or electronic bias in the alkyne. The authors have developed catalyst systems which are exceptionally sensitive to steric differences in unsymmetrical alkynes, allowing either regioisomeric trisubstituted alkene to be synthesized.

Comment: Through careful choice of ligand and ed in good yields with groups as similar as methyl and *n*-propyl on the alkyne. The inherent bias of, come to provide reductive coupling products that ods. The optimal choice of reducing agent, base, and ligand is substrate-dependent; however, simple and straightforward guidelines are provided to make this a practical and useful method.

SYNFACTS Contributors: Mark Lautens, Stephen G. Newman Synfacts 2010, 8, 0899-0899 Published online: 22.07.2010 DOI: 10.1055/s-0030-1257777; Reg-No.: L08210SF

Category

Metal-Catalyzed Asymmetric Synthesis and **Stereoselective** Reactions

Key words

propargylation

regioselective hydrometalation



reducing agent, either regioisomer can be accessfor example, conjugated alkynes can also be overwere previously inaccessible through similar meth-