

Nickel-Catalyzed Enantioselective Hydroamination of Branched 1,3-Dienes

Category

Metals in Synthesis

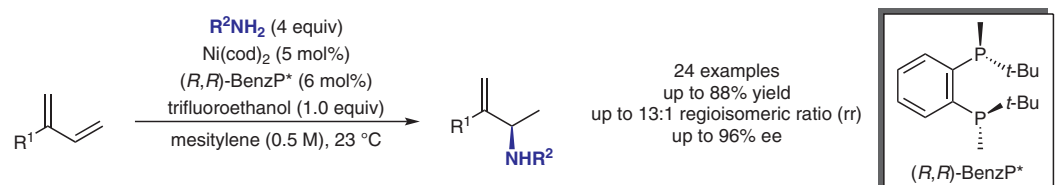
Key words

nickel catalysis

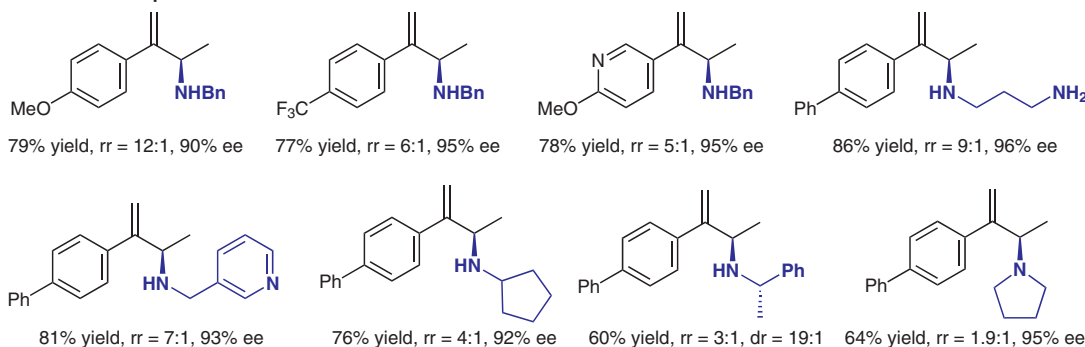
hydroamination

1,3-dienes

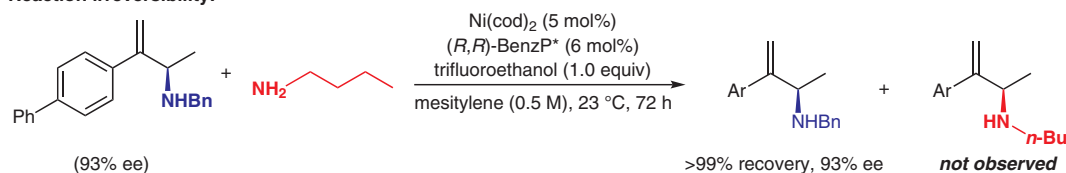
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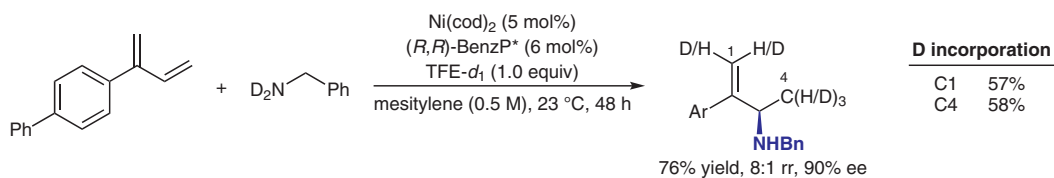
Selected examples:



Reaction irreversibility:



Deuterium incorporation studies:



Significance: The authors report an enantioselective hydroamination of 1,3-dienes by using nickel catalysis. The products were obtained in moderate to good yields and with high enantioselectivities. Reaction monitoring, deuterium labelling, and kinetic studies were performed to elucidate the reaction mechanism.

Comment: Mechanistic experiments reveal the irreversibility of this reaction. Deuterium incorporation was observed in the hydroaminated product when d_2 -benzylamine and d_1 -TFE were employed. Kinetic studies suggest that a Ni- π -allyl species arising from hydronicellation is the catalyst resting state.