

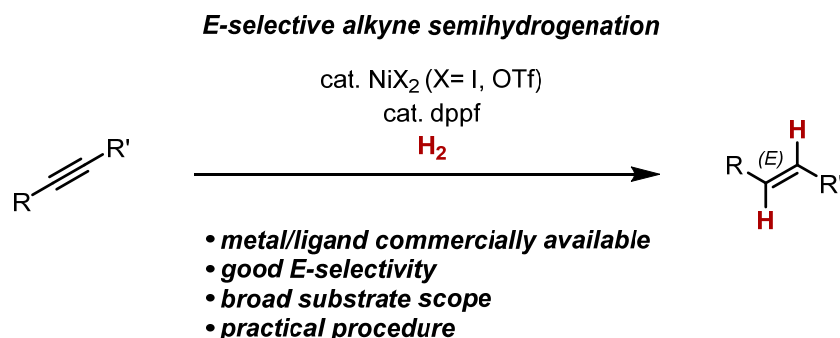
# Ni-CATALYZED *E*-SELECTIVE ALKYNE SEMIHYDROGENATIONS

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The catalytic stereoselective semihydrogenation of alkynes into *E*- or *Z*-alkenes is an important transformation,[1] which is widely applied for the construction of natural products, fragrances, pharmaceuticals, and agrochemical products.[2] Many catalytic hydrogenations producing *Z*-alkenes from internal alkynes are established, e.g. the *Lindlar* reduction,[3] which predominantly proceed through *syn* hydrometalations as key stereodetermining step. On the other hand, the formation of *E*-alkenes *via* direct hydrogenation is still challenging.

Metal catalyzed *E*-selective semihydrogenations with Ru, Fe and Co have been reported recently.[4-7] However, these methods rely on noble metals or sophisticated ligand frameworks. We report on the development of an *E*-selective alkyne semihydrogenation based on a simple nickel catalyst consisting of commercially available of NiX<sub>2</sub> (X = I or OTf) and a simple bisphosphine ligand. The resulting protocol is thus practical, yielding high *E*-selectivity with insignificant overreduction to the alkane, and is showing a remarkable functional group tolerance.[8]



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