

Catalytic Asymmetric Cross-Coupling of Styrenyl Aziridines

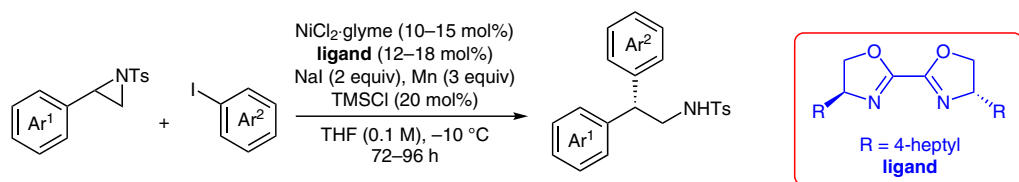
Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

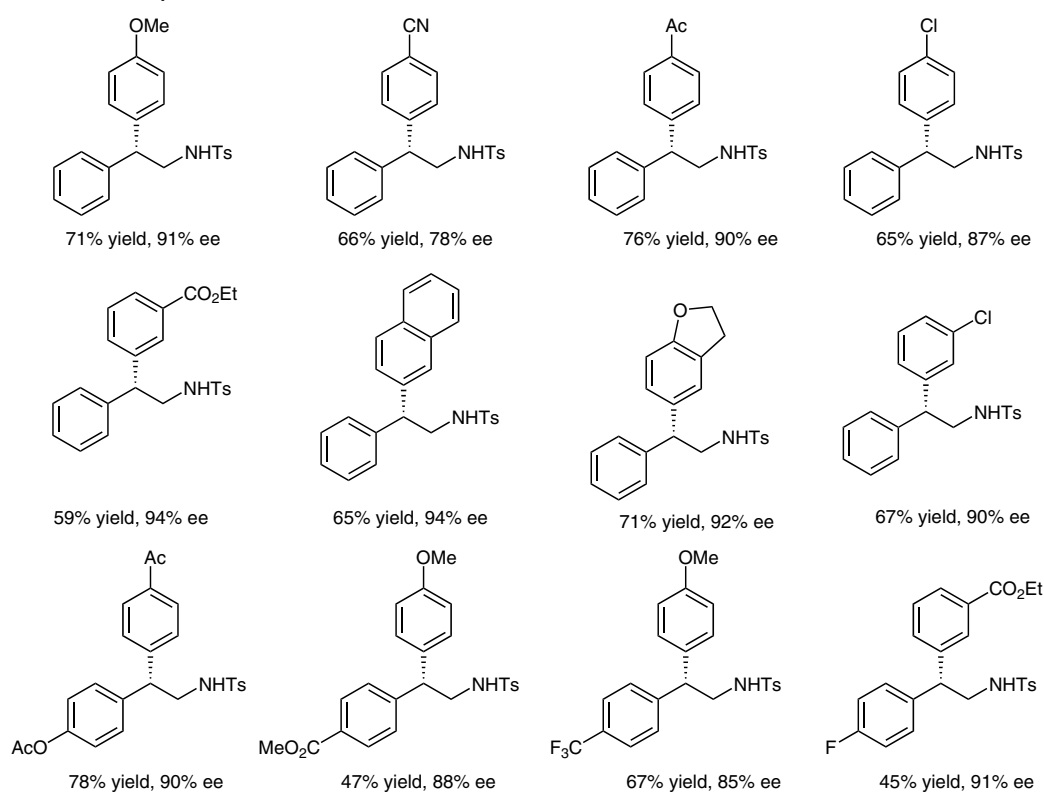
Key words

nickel catalysis
cross-coupling
aziridines
ring opening
arylphenethylamines

Synfact
of the month



Selected examples:



Significance: The metal-catalyzed cross-coupling reaction is one of the most useful reactions for forming C–C bonds. A nickel-catalyzed reductive cross-coupling of racemic styrenyl aziridines with aryl halides in the presence of a new bisoxazoline ligand gave highly enantioenriched 2-arylphenethylamines in good yields and with excellent enantioselectivity.

Comment: The method has a broad substrate scope and tolerates various functional groups. Moreover, variation in the enantioselectivity depending on the ligand was well explained by means of multivariate analysis. A detailed ligand study was carried out to determine the origin of the observed selectivity. The present method can be useful in the synthesis of various chiral 2-arylphenethylamine moieties present in bioactive molecules and pharmaceutically important molecules.