

# Synergistic Iridium and Lewis Base Catalyzed Stereodivergent Allylic Substitutions

Category

Metal-Catalyzed  
 Asymmetric  
 Synthesis and  
 Stereoselective  
 Reactions

Key words

allylic substitution

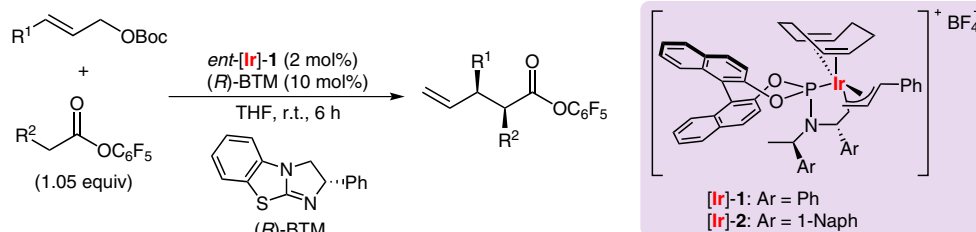
synergistic  
 catalysis

iridium catalysis

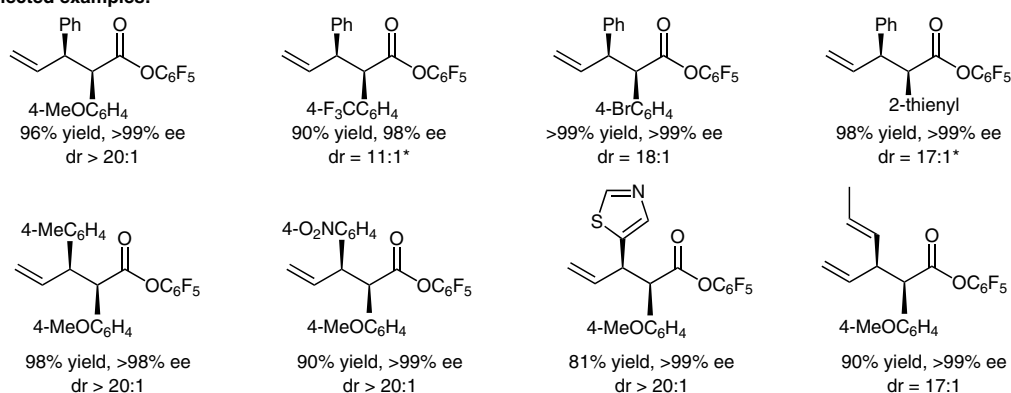
Lewis bases

arylacetic esters

Synfact  
*of the month*

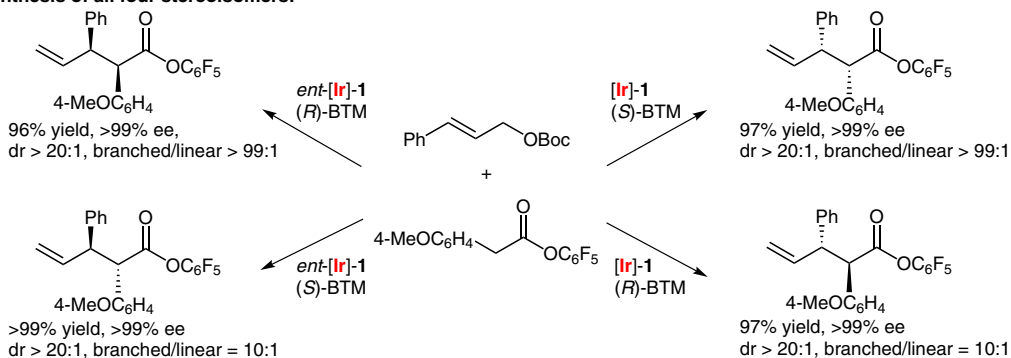


## Selected examples:



\*20 mol% (R)-BTM was used.

## Synthesis of all four stereoisomers:



**Significance:** Catalytic asymmetric construction of all possible stereoisomers by a simple and unified method is a challenging research subject in synthetic organic chemistry. The authors developed a stereodivergent allylic substitution with arylacetic acid esters and synergistic iridium/benzotetramisole (BTM) catalysis.

**Comment:** The reaction proceeded in the presence of *ent*-[Ir]-1 and (R)-BTM as synergistic catalysts to give the corresponding products bearing two adjacent stereocenters in high yields and with excellent stereoselectivities. The catalyst system permitted the synthesis of all four stereoisomers of the products. Iridium complex [Ir]-2 also showed catalytic performance in the stereodivergent allylic substitutions.

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