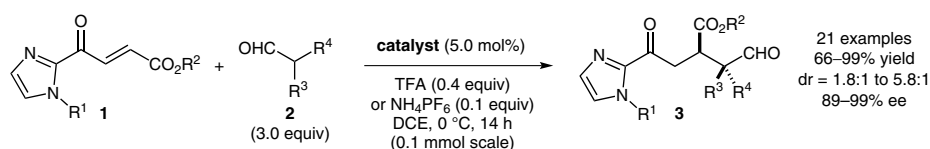
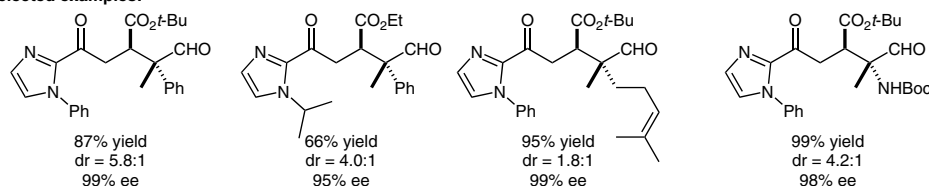


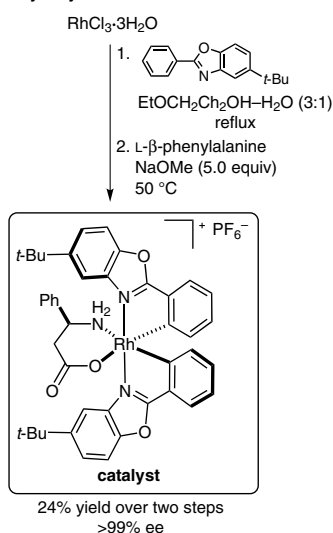
Asymmetric Michael Addition Reaction via Rhodium Catalyst Fragmentation



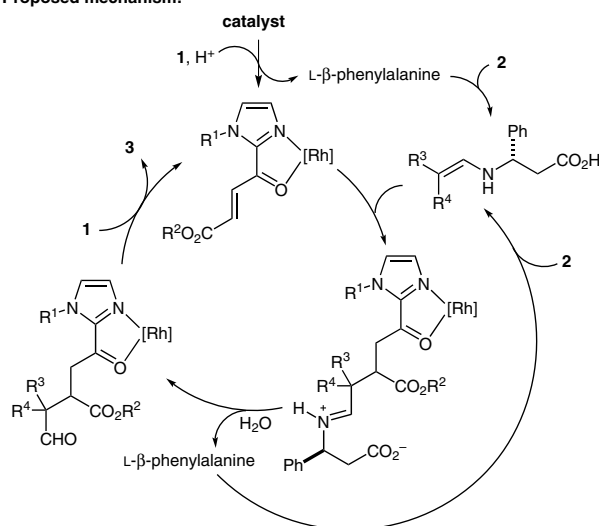
Selected examples:



Catalyst synthesis:



Proposed mechanism:



Significance: Dual catalysis has emerged as a powerful approach for the synthesis of enantioenriched compounds. The use of a single catalyst containing two or more functionalities, or the co-operation of two different catalysts, represents the common approach. The authors present an unusual dual catalytic system based on the disintegration of a single chiral rhodium complex in situ. This process was applied in the asymmetric Michael addition of aldehydes to give α,β -unsaturated 2-acyl imidazoles.

Comment: Reaction between α,α -disubstituted aldehydes and α,β -unsaturated 2-acyl imidazoles was catalyzed by a single chiral rhodium catalyst. The corresponding products were obtained in excellent yields, moderate diastereo- and excellent enantioselectivities. The authors propose a mechanism in which the rhodium catalyst decomposes into a chiral Lewis acid, which activates the 2-acyl imidazole substrate **1**, and L- β -phenylalanine, which activates the aldehyde **2**.