Asymmetric Rhodium-Catalyzed C–C Activation of Cyclobutanones

Selected examples:

Postulated catalytic cycle: (deuterated studies)

Significance: C–C activation is an attractive method to functionalize strained four-membered ring systems. Zhou and Dong demonstrate the utility of allenes as a formal vinyl carbenoid in a rhodium-catalyzed asymmetric intramolecular ring expansion of cyclobutanones.

Comment: An impressive substrate scope for this C–C activation protocol is demonstrated. Challenging cyclobutanone substrates such as those that are α-substituted also worked for this methodology, albeit with slightly diminished yields.

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