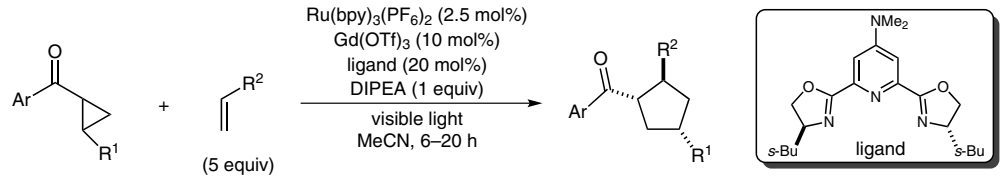
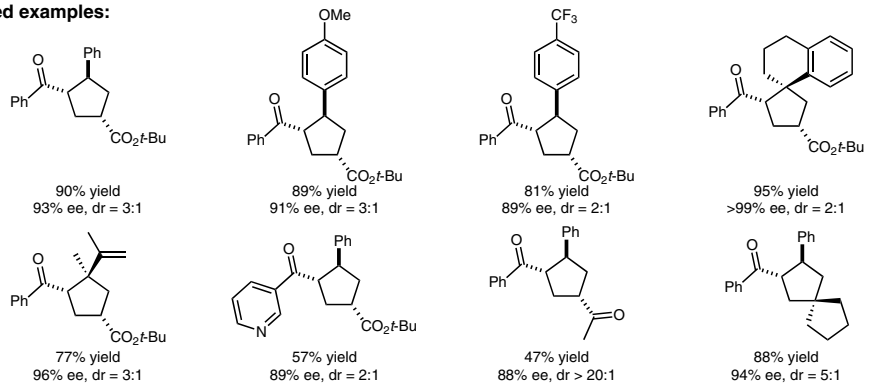
A. G. AMADOR, E. M. SHERBROOK, T. P. YOON* (UNIVERSITY OF WISCONSIN–MADISON, USA)

Enantioselective Photocatalytic [3+2] Cycloadditions of Aryl Cyclopropyl Ketones
J. Am. Chem. Soc. **2016**, *138*, 4722–4725.

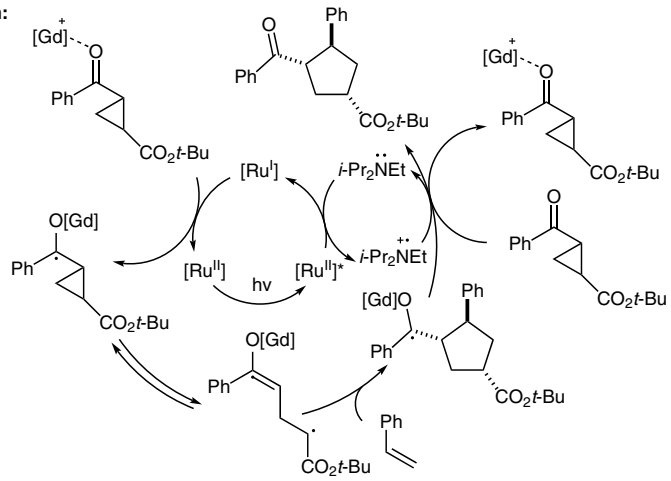
Gd-Catalyzed Photocycloaddition of Aryl Cyclopropyl Ketones to Alkenes



Selected examples:



Proposed mechanism:



Significance: The authors report a gadolinium-catalyzed asymmetric [3+2] photocycloaddition of aryl cyclopropyl ketones with alkenes. A variety of chiral cyclopentanes were obtained in high yields (≤95%) and stereoselectivities (up to >99% ee and dr up to >20:1).

Comment: This result demonstrates that a combination of a chiral Lewis acid and photoredox catalysis offers a robust and potentially general approach to photochemical stereocontrol that is broadly applicable to the increasing number of powerful transformations achievable by using photoredox catalysis.

SYNFACTS Contributors: Hisashi Yamamoto, Masahiro Sai
Synfacts 2016, 12(07), 0693 Published online: 17.06.2016
DOI: 10.1055/s-0035-1562292; **Reg-No.:** H07516SF