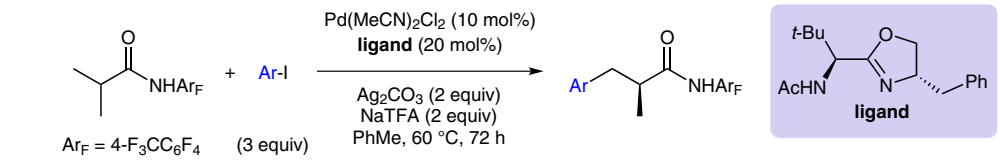
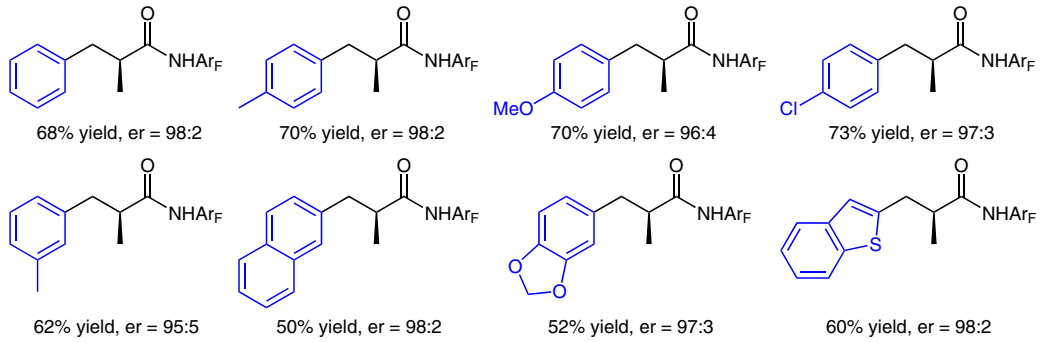
Q.-F. WU, P.-X. SHEN, J. HE, X.-B. WANG, F. ZHANG, Q. SHAO, R.-Y. ZHU, C. MAPELLI, J. X. QIAO, M. A. POSS, J.-Q. YU* (THE SCRIPPS RESEARCH INSTITUTE, LA JOLLA AND BRISTOL-MYERS SQUIBB COMPANY, PRINCETON, USA)

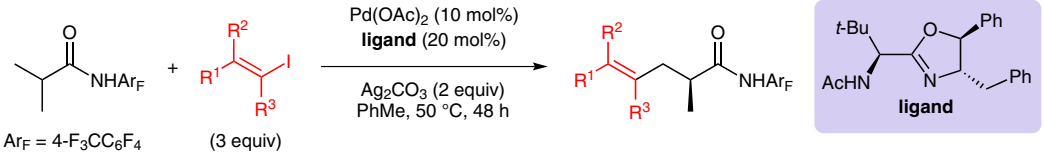
Formation of α-Chiral Centers by Asymmetric β-C(sp^3)–H Arylation, Alkenylation, and Alkynylation
Science **2017**, *355*, 499–503.

Palladium-Catalyzed Asymmetric C–H Functionalizations of Isobutanamides

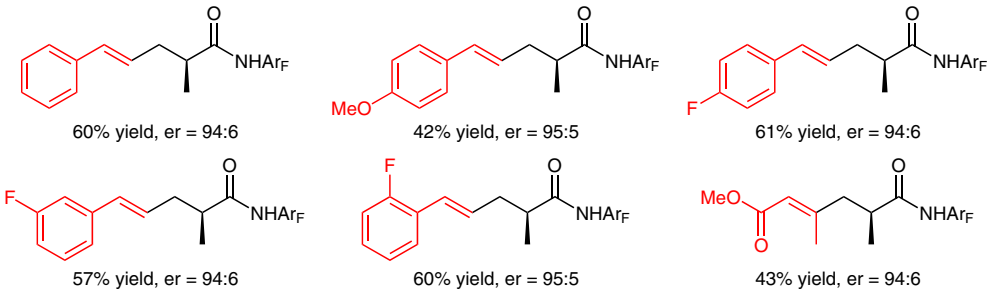


Selected examples:





Selected examples:



Significance: Desymmetrization of isopropyl moieties has remained an unanswered challenge. The authors have developed new ligands for the formation of a chiral center at the α-position of isobutyric acid derivatives through β-C(sp^3)–H functionalization.

Comment: This palladium-catalyzed protocol promotes an asymmetric β-C(sp^3)–H arylation, alkenylation, or alkynylation to form a chiral center at the α-position of a range of isobutyric acid derivatives with moderate yields and excellent enantioselectivities.

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Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

palladium catalysis
C–H functionalization
arylation
alkenylation
alkynylation
isobutanamides