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SYNFACTS
Highlights in
Current Synthetic
Organic Chemistry

Thieme

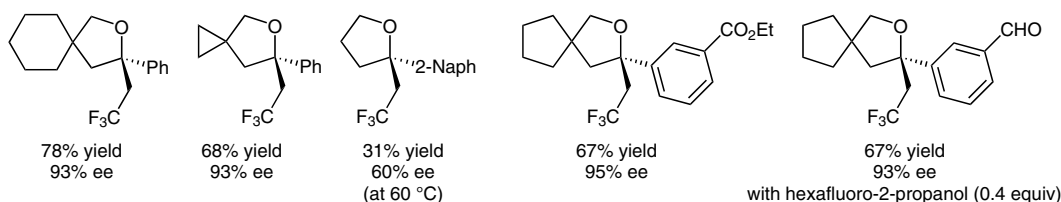Y.-F. CHENG, X.-Y. DONG, Q.-S. GU, Z.-L. YU, X.-Y. LIU* (SOUTH UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA, SHENZHEN, P. R. OF CHINA)
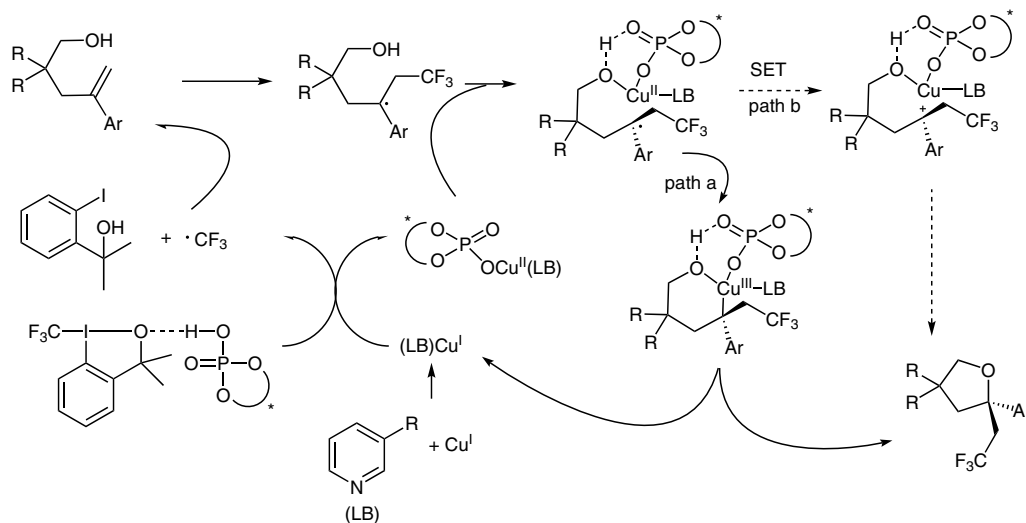
Enantioselective Oxytrifluoromethylation of Alkenes
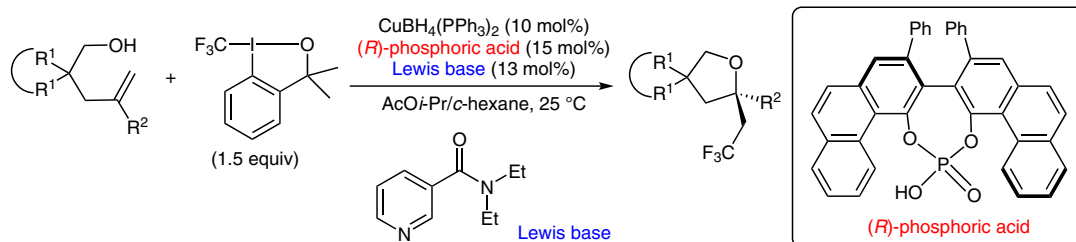
Selected examples:

Proposed reaction mechanism:

Significance: A highly enantioselective copper-catalyzed radical oxytrifluoromethylation of alkenes, affording CF$_3$-substituted furans, is described. Interestingly, an achiral pyridine ligand increased the enantioselectivity as a consequence of the stabilization of high-valent copper species.

Comment: On the basis of mechanistic experiments, the authors suggest that the F$_3$C$^{\cdot}$ radical is generated from Togni's reagent through activation by the chiral phosphoric acid. Various functional groups are tolerated under the reaction conditions.