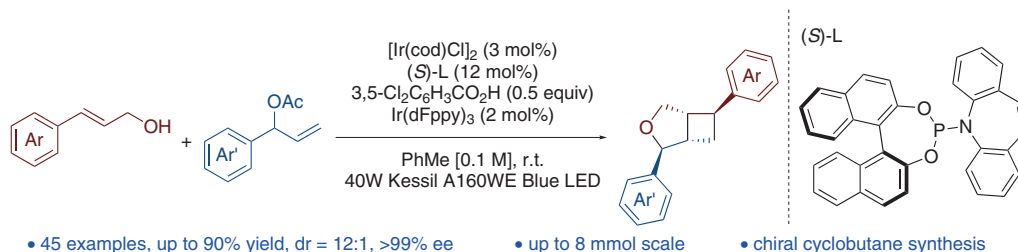
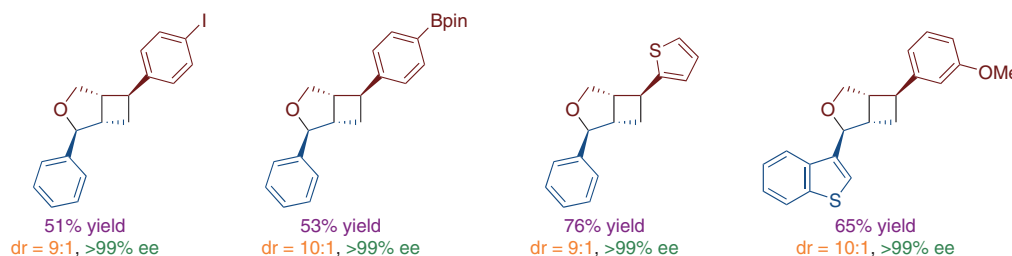


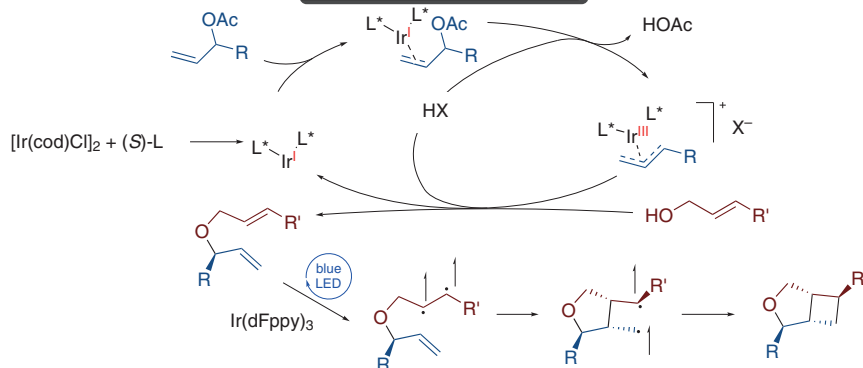
Iridium-Catalyzed Enantioselective Cascade Allylic Etherification/[2+2] Photocycloaddition



Selected examples



Proposed reaction mechanism



Significance: The group of You reports an enantioselective synthesis of cyclobutane derivatives via an iridium-catalyzed strategy under blue LED conditions. The wide functional group tolerance with good to excellent diastereoselectivity (up to 12:1) and excellent enantioselectivity (up to >99%) enhance the utility of this method. This reaction can be scaled to 8 mmol scale with similar efficiency.

Comment: The authors developed an efficient synthesis of chiral cyclobutanes, a key synthon in organic synthesis of natural or biologically active molecules. The reaction proceeds via a cascade reaction involving Ir-catalyzed asymmetric allylic etherification followed by visible-light-induced [2+2] cycloaddition. This strategy used styrenyl acetates lacking a directing group and straightforward set-up: all the starting materials and catalysts are added simultaneously.