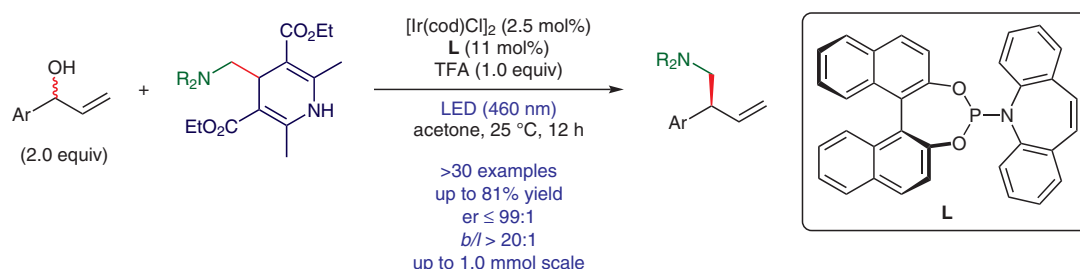
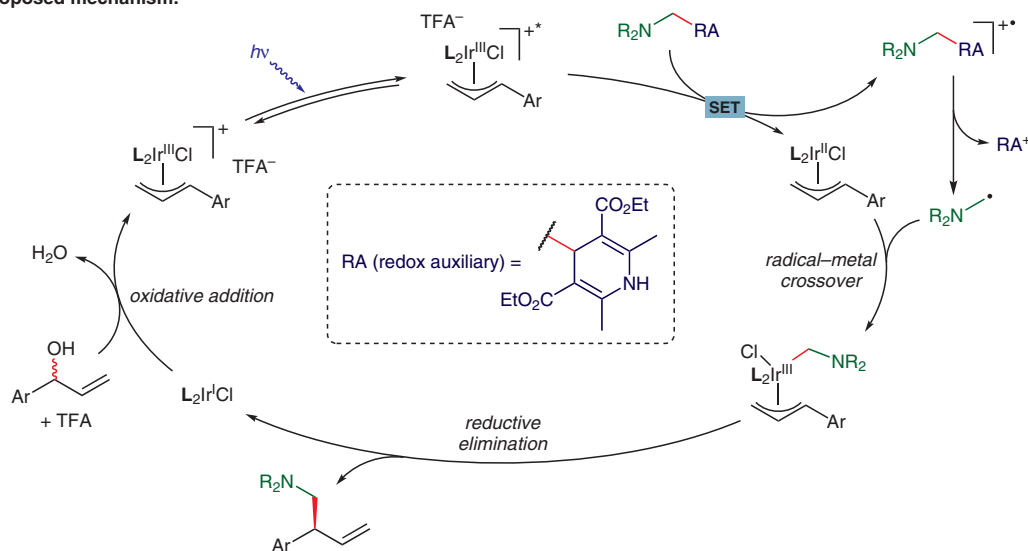


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 Catalytic Asymmetric C–C Cross-Couplings Enabled by Photoexcitation
Nat. Chem. **2021**, *13*, 575–580, DOI: 10.1038/s41557-021-00683-5.

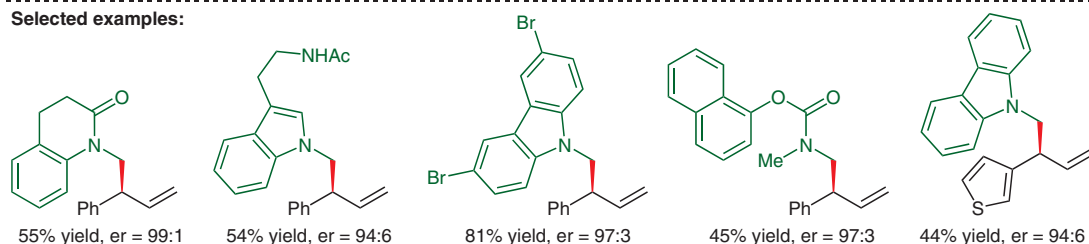
Photochemical Asymmetric Iridium-Catalyzed C(sp³)–C(sp³) Cross-Coupling



Proposed mechanism:



Selected examples:



Significance: The Melchiorre group reports an enantioselective C(sp³)–C(sp³) cross-coupling of α -vinylbenzyl alcohols with radical precursors under visible-light irradiation. In contrast to the well-established ionic reactivity of allyl-iridium(III) catalysts, photoexcitation allowed for the activation of a coupling partner via a single-electron transfer manifold.

Comment: No external photocatalyst was required as the reaction relies on the photoexcitation of the chiral organometallic intermediate. In addition to Hantzsch ester derivatives, α -amino trimethylsilanes and tetrafluoroborates could be employed as radical precursors, typically with lower efficacy.

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