G. E. M. CRISENZA, A. FARAONE, E. GANDOLFO, D. MAZZARELLA, P. MELCHIORRE\* (ICIQ, INSTITUTE OF CHEMICAL RESEARCH OF CATALONIA - THE BARCELONA INSTITUTE OF SCIENCE AND TECHNOLOGY, TARRAGONA AND ICREA, CATALAN INSTITUTION FOR RESEARCH AND ADVANCED STUDIES, BARCELONA, SPAIN) 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(sp<sup>3</sup>)–C(sp<sup>3</sup>) Cross-Coupling



**Significance:** The Melchiorre group reports an enantioselective  $C(sp^3)-C(sp^3)$  cross-coupling of  $\alpha$ -vinylbenzyl alcohols with radical precursors under visible-light irradiation. In contrast to the wellestablished ionic reactivity of allyl-iridium(III) catalysts, photoexcitation allowed for the activation of a coupling partner via a single-electron transfer manifold.

**SYNFACTS Contributors:** Mark Lautens, Joachim Loup Synfacts 2021, 17(08), 0881 Published online: 20.07.2021 **DOI:** 10.1055/s-0040-1720362; **Reg-No.:** L08721SF **Comment:** No external photocatalyst was required as the reaction relies on the photoexcitation of the chiral organometallic intermediate. In addition to Hantzsch ester derivatives,  $\alpha$ -amino trimethylsilanes and tetrafluoroborates could be employed as radical precursors, typically with lower efficacy.

## Category

Metals in Synthesis

## Key words

iridium catalysis

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allylation

