L.-M. ENTGELMEIER, S. MORI, S. SENDO, R. YAMAGUCHI, R. SUZUKI, T. YANAI*, O. GARCÍA MANCHEÑO*, K. OHMATSU*, T. OOI* (NAGOYA UNIVERSITY, JAPAN)

Zwitterionic Acridinium Amidate: A Nitrogen-Centered Radical Catalyst for Photoinduced Direct Hydrogen Atom Transfer
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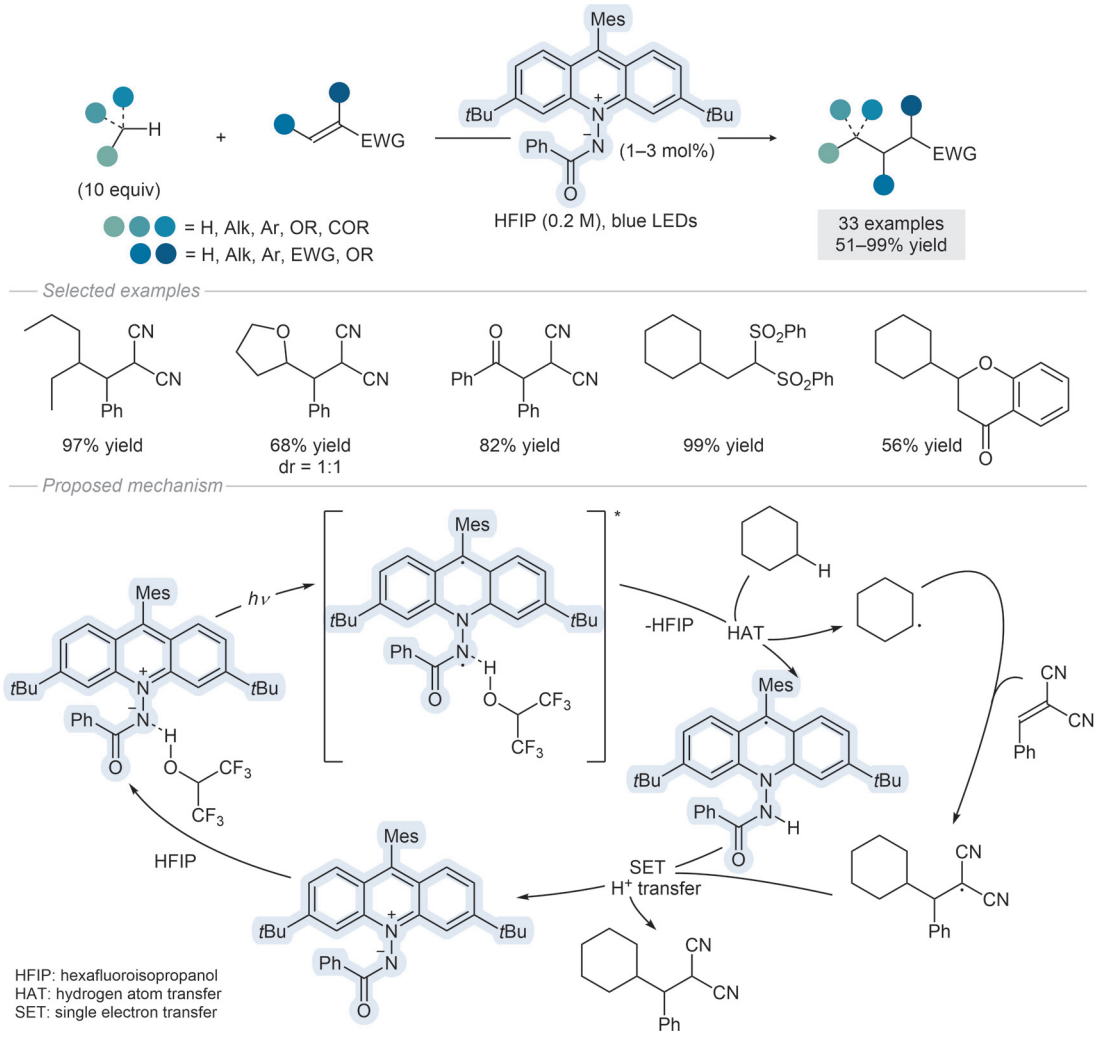
Photocalatytic C–H Alkylation Enabled by a Zwitterionic Acridinium Amidate Catalyst



Significance: Ooi, Ohmatsu, García Mancheño, Yanai, and co-workers disclose a photocatalytic alkylation of unactivated C–H bonds using electrophilic olefins. To this end, a zwitterionic acridinium amidate was designed as a direct hydrogen atom transfer catalyst, furnishing the products in good to excellent yields.

Comment: Mechanistic studies show that hydrogen bonding of the catalyst to HFIP as well as the perpendicular orientation of the 2p orbitals of the acridinium and amidate N-atoms enable the formation of a twisted, catalytically active diradical upon photoexication and intramolecular charge transfer.

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Category
Organo- and Biocatalysis

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Synfact of the Month