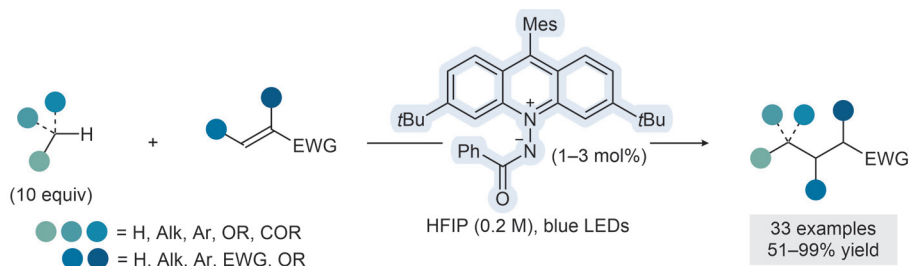
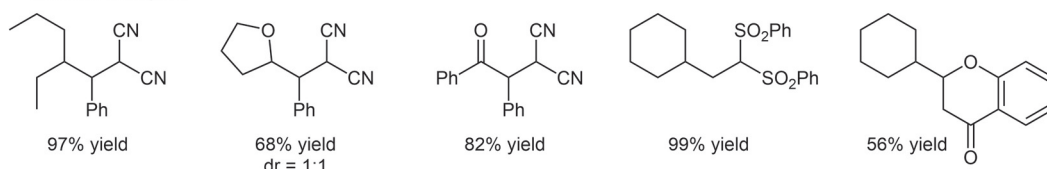


L.-M. ENTGELMEIER, S. MORI, S. SENDO, R. YAMAGUCHI, R. SUZUKI, T. YANAI\*, O. GARCÍA MANCHEÑO\*, K. OHMATSU\*, T. OOI\* (NAGOYA UNIVERSITY, JAPAN)  
Zwitterionic Acridinium Amidate: A Nitrogen-Centered Radical Catalyst for Photoinduced Direct Hydrogen Atom Transfer  
*Angew. Chem. Int. Ed.* **2024**, e202404890 DOI: 10.1002/anie.202404890.

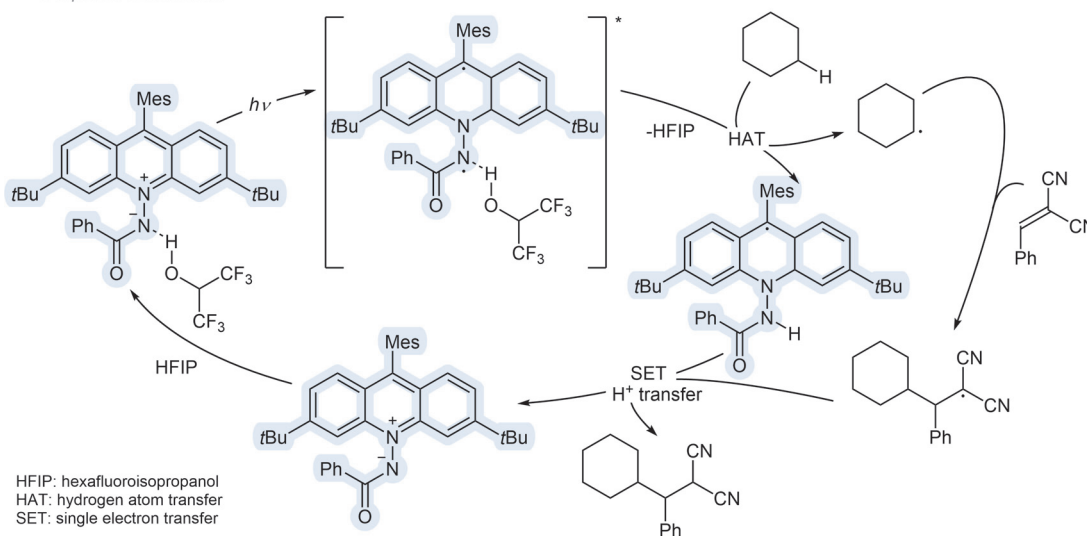
# Photocatalytic C–H Alkylation Enabled by a Zwitterionic Acridinium Amidate Catalyst



## Selected examples



## Proposed mechanism



**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 photoexcitation and intramolecular charge transfer.

**SYNFACTS Contributors:** Benjamin List, Wencke Leinung  
*Synfacts* 2024, 20(09), 0969 Published online: 16.08.2024  
DOI: 10.1055/s-0043-1775273; Reg-No.: B08724SF

© 2024, Thieme. All rights reserved.  
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

Category

Organo- and Biocatalysis

Key words

photocatalysis  
acridinium amidate  
nitrogen-centered radical  
C–H alkylation  
hydrogen atom transfer

Synfact  
of the  
Month

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.