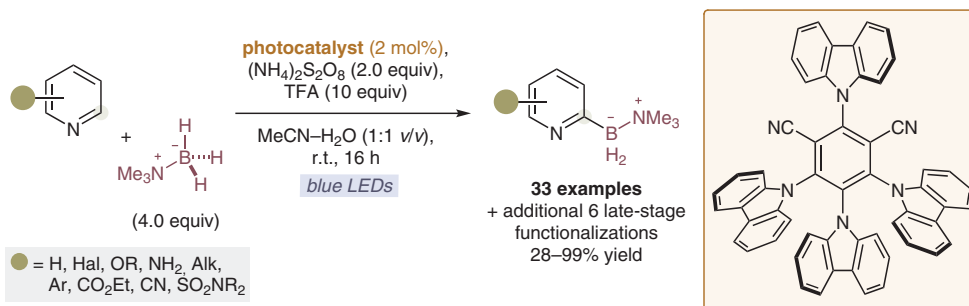


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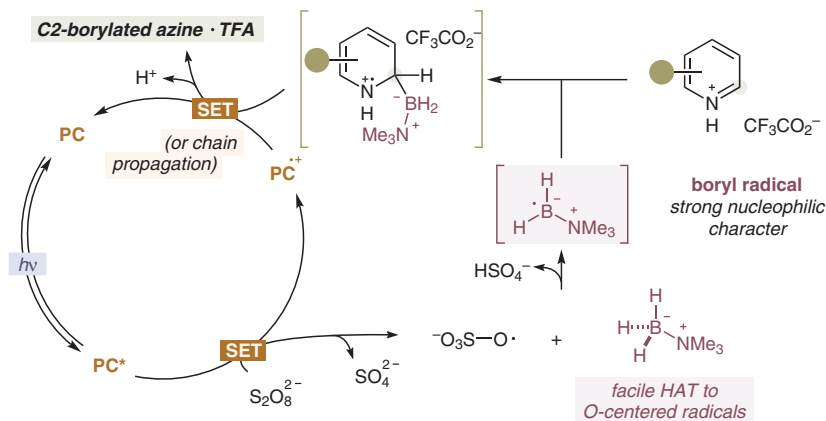
A Radical Approach for the Selective C–H Borylation of Azines

Nature 2021, DOI: 10.1038/s41586-021-03637-6.

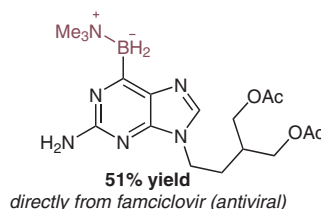
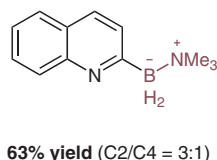
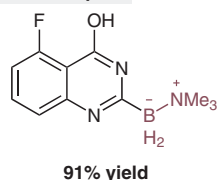
# An Organophotocatalytic Borylative Minisci Reaction



Proposed mechanism:



Selected examples:



**Significance:** Leonori and co-workers present an organophotocatalytic borylative Minisci reaction. Strongly acidic and oxidizing conditions ensure the generation of highly nucleophilic boryl radicals in situ, yielding C2-borylated nitrogen heterocycles with moderate regioselectivities and good to excellent yields. Additionally, the authors demonstrate that amine-borylated azines readily engage in conventional organoboron chemistry.

**Comment:** Polarity-reversal catalysis harnesses the electrophilic or nucleophilic character of radicals to render hydrogen atom-transfer reactions that would otherwise be polarity mismatched kinetically feasible. Because of the nucleophilic character of the respective radicals, amine-boranes themselves have previously been investigated as polarity-reversal catalysts (see Review below). The beauty of this work lies in the translation of this concept into one of the most sought-after transformations for the direct functionalization of N-heterocycles.

**Review:** B. P. Roberts *Chem. Soc. Rev.* **1999**, *28*, 25–35.

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Synfacts 2021, 17(08), 0921 Published online: 20.07.2021  
DOI: 10.1055/s-0040-1719940; Reg-No.: B05521SF

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Category

Organo- and Biocatalysis

Key words

Minisci reaction  
photocatalysis  
azines  
pyridines  
quinolines  
amine-borane adduct

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