

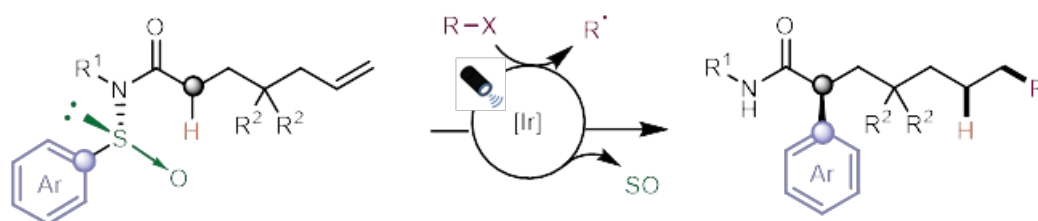
Visible-light-mediated Enantioselective Arylation of Remote C(sp³)-H Bonds via Hydrogen Atom Transfer and Sulfinyl-Smiles Rearrangement

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Asymmetric remote C(sp³)-H functionalization, in particular using 1,*n*-Hydrogen Atom Transfer (HAT) events^[1], represents a powerful strategy to forge stereogenic carbon centers in otherwise inaccessible positions. Despite significant progress in combining 1,*n*-HAT with enantioselective transition metal catalysis^[2], asymmetric arylation of remote C(sp³)-H bonds remains a largely unsolved problem. Meanwhile, the radical sulfinyl-Smiles rearrangement has emerged in recent years as a versatile tool for asymmetric (hetero)arylation^[3].

Herein, we present a visible-light-mediated remote arylation of sulfinyl heptenamide combining a sequential 1,*n*-HAT and a sulfinyl-Smiles rearrangement. With this protocol, a wide variety of chiral amides are obtained with excellent enantioselectivity. Mechanistic investigations, including deuterium labeling experiments and computational studies, have been conducted to support a comprehensive understanding of this transformation.



[1] Weisi Guo, Qian Wang, Jieping Zhu, *Chem. Soc. Rev.* **2021**, 50, 7359-7377.

[2] Peng Yu, Jin-Shun. Lin, Lei Li, Sheng-Cai Zheng, Ya-Ping Xiong, Li-Jiao Zhao, Bin Tan, Xin-Yuan Liu, *Angew. Chem. Int. Ed.* **2014**, 53, 11890-11894.

[3] Cedric Hervieu, Mariia S. Kirillova, Tatiana Suárez, Marco Müller, Estíbaliz Merino, Cristina Nevado, *Nat. Chem.* **2021**, 13, 327-334.