

# Annulation cascades of cyclosulfonium salts and alkenes towards sulfur-containing N-heterocycles by visible light/copper catalysis

Jie Ma<sup>1</sup>, Xufeng Li<sup>2</sup>, Yuqing Chen<sup>1</sup>, Yongjia Shi<sup>1</sup>, Xiuyan Song<sup>1</sup>, Jian Lv<sup>1</sup>, and Daoshan Yang<sup>1</sup>

<sup>1</sup>Qingdao University of Science and Technology

<sup>2</sup>Zhejiang Wansheng Co., Ltd.

March 12, 2024

## Abstract

Although, great achievements have been made in the synthesis of heterocycles using radical addition/cyclization strategy, developing versatile alkyl radical precursors, especially the non-stabilized ones for this method still remains a huge challenge. Herein, we report an efficient annulation cascade reaction between cyclosulfonium salts and alkenes for the synthesis of sulfur-containing N-heterocycles by visible light/copper catalysis under mild conditions. The C-S bond cleavage/radical cascade reaction delivers a variety of corresponding N-heterocycles containing aryl alkyl thioether motifs with good functional group tolerance. Significantly, the current system could be used for the late-stage functionalization of complex bioactive molecules.

## Hosted file

Text-CJC-Yang.docx available at <https://authorea.com/users/754427/articles/724318-annulation-cascades-of-cyclosulfonium-salts-and-alkenes-towards-sulfur-containing-n-heterocycles-by-visible-light-copper-catalysis>