

C-H BOND-INVOLVED INTRAMOLECULAR ASYMMETRIC RADICAL CYCLIZATION

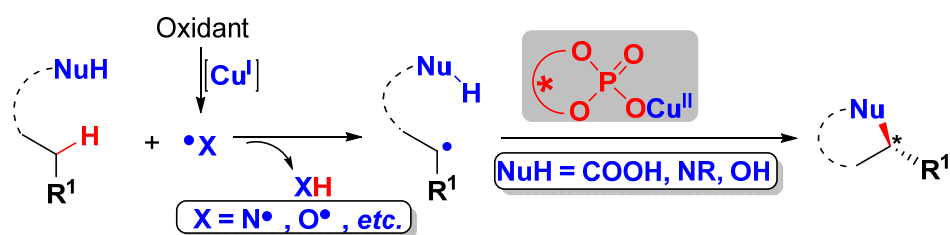
Liu Ye^a, and Xin-Yuan Liu^b

^aSUSTech Academy for Advanced Interdisciplinary Studies,
Southern University of Science and Technology, Shenzhen 518055, China

^bDepartment of Chemistry and Shenzhen Grubbs Institute,
Southern University of Science and Technology, Shenzhen 518055, China

Chiral heterocycles are significant motifs widely displayed in natural products, pharmaceuticals as well as bioactive molecules, therefore the development of efficient asymmetric catalysis strategy to access those compounds has attracted much attention from synthetic chemists. Asymmetric C–H functionalization has become a hot topic in recent years, due to its advantages such as high reaction efficiency and atom economy. However, only few successful examples of asymmetric C–H functionalization has been reported. Therefore, to develop ample efficient asymmetric C–H functionalization is highly desirable.

Our group has successfully developed a dual catalytic system of copper/chiral phosphoric acid (Cu/CPA) to realize the asymmetric radical 1,2-difunctionalization of unactivated alkenes [1-3]. Inspired by these work, we envision that Cu/CPA catalytic system might be applied in radical involved intramolecular asymmetric C–H functionalization to provide an efficient approach toward chiral heterocycles.



Scheme 1 C-H Bond-Involved Intramolecular Asymmetric Radical Cyclization

[1] Ye, L.; Gu, Q.-S.; Tian, Y.; Meng, X.; Chen, G.-C.; Liu, X.-Y. *Nat. Commun.* **2018**, *9*, 227.

[2] Lin, J.-S.; Dong, X.-Y.; Li, T.-T.; Jiang, N.-C.; Tan, B.; Liu, X.-Y. *J. Am. Chem. Soc.* **2016**, *138*, 9357.

[3] Cheng, Y.-F.; Dong, X.-Y.; Gu, Q.-S.; Yu, Z.-L.; Liu, X.-Y. *Angew. Chem., Int. Ed.* **2017**, *56*, 8883.