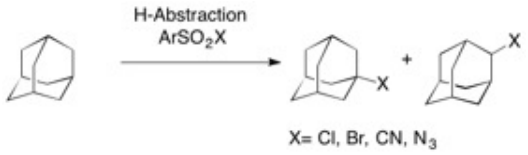
Intermolecular H-Atom Abstraction in Radical C-H Activation

I. Kovalova[1], P. Renaud[1]*

[1]University of Bern

Intermolecular C-H functionalization of unactivated hydrocarbons are of great importance in the synthetic organic chemistry. Selective activation of aliphatic C-H bond can be performed using transition metal catalysis[1,2] or radical reactions[3,4]. Control the regioselectivity of radical mediated C-H activation is a challenging field[5,6].



We describe here a general approach using different kinds of highly reactive radicals to abstract the hydrogen atoms and sulphonyl reagents to trap the intermediate alkyl radicals. A strategy to control the regiochemistry by varying the abstracting radical will be presented.

[1] Wei Zhang, Nai-XingWang, Yalan Xing, *Synlett,* **2015,** 26, 2088–2098.
[2] Ankit Sharma, John F. Hartwig, *Nature,* **2015,** 517, 600-604.
[3] Qixue Qin, Shouyun Yu, *Org. Lett.,* **2015**, 17, 1894−1897.
[4] Megumi Okada, Takahide Fukuyama, Keiichi Yamada, Ilhyong Ryu, Davide Ravelli, Maurizio Fagnoni, *Chem. Sci.,* **2014**, 5, 2893-2898.
[5] Valerie A. Schmidt, Ryan K. Quinn, Andrew T. Brusoe, Erik J. Alexanian,*J. Am. Chem. Soc.,* **2014**, 136, 14389−14392.
[6] Ryan K. Quinn, Zef A. Könst, Sharon E. Michalak, Yvonne Schmidt, Anne R. Szklarski, Alex R. Flores, Sangkil Nam, David A. Horne, Christopher D. Vanderwal, Erik J. Alexanian, *J. Am. Chem. Soc.*, **2016**, 138, 696–702.