Chemical Reviews

HFIP in Organic Synthesis

Hashim F. Motiwala*, Ahlam M. Armaly, Jackson G. Cacioppo, Thomas C. Coombs, Kimberly R. K. Koehn, Verrill M. Norwood IV, and Jeffrey Aubé

Chem. Rev., 2022, 122, 12544-12747
https://doi.org/10.1021/acs.chemrev.1c00749

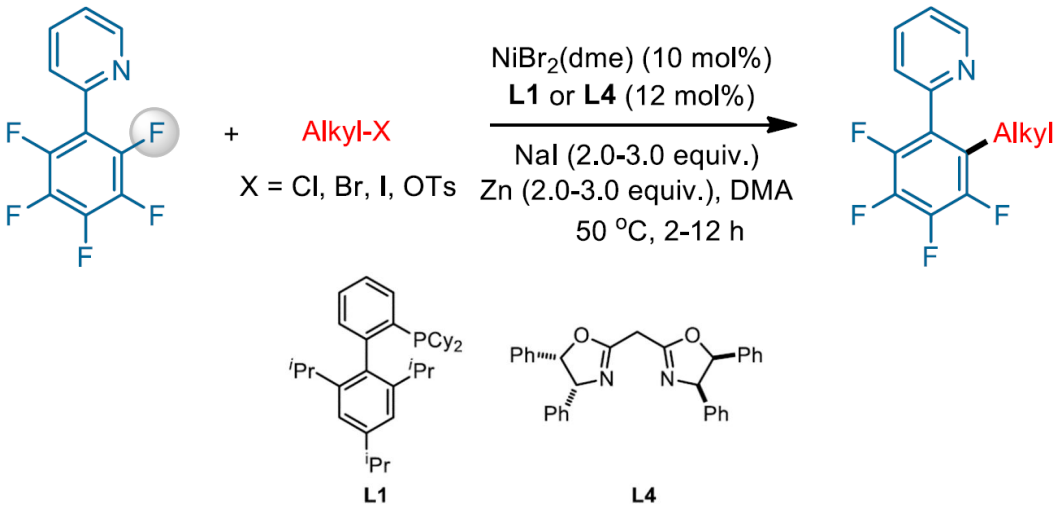
1,1,1,3,3,3-Hexafluoroisopropanol (HFIP) is a polar, strongly hydrogen bond-donating solvent that has found numerous uses in organic synthesis due to its ability to stabilize ionic species, transfer protons, and engage in a range of other intermolecular interactions.

Chinese Chemical Letters

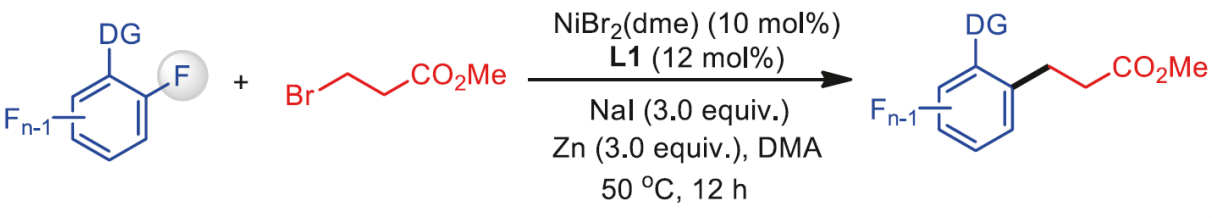
Nickel-catalyzed reductive cross-coupling of polyfluoroarenes with alkyl electrophiles by site-selective C–F bond activation

Longlong Xi, Liting Du, Zhuangzhi Shi

Chinese Chemical Letters, 2022, 33, 4287-4292
https://doi.org/10.1016/j.cclet.2022.01.077



26 examples
yield up to 75%



21 examples

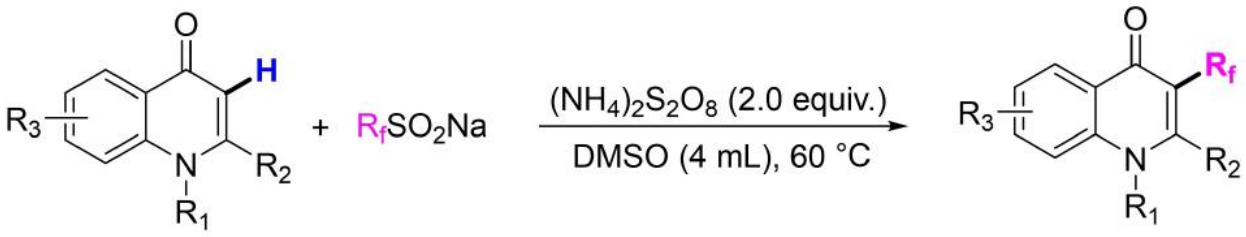
yield up to 94%

European Journal of Organic Chemistry

Regioselective Perfluoroalkylation of 4-Quinolones Using Sodium Perfluoroalkyl Sulfinates

Li Dong, Xiaoqing Wang, Yudi Nie, Shuo Yu, Haotong Li, Qian Zhao, Zixuan Fan, Yuqian Wang, Xiaoting Tan, Zhengsen Yu

Eur. J. Org. Chem., 2022, 37, e202200842
https://doi.org/10.1016/j.cclet.2022.01.077



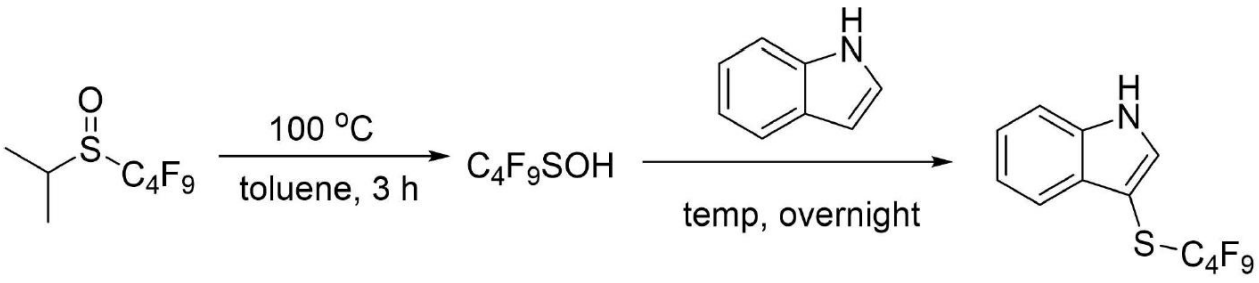
R_1 = H, benzyl; R_2 = H, alkyl, aryl; R_3 = H, Br, alkoxy; R_f = C_6F_{13} or C_8F_{17}.

12 examples
yield up to 91%

The Perfluoroalkylthiolation Reaction of Indoles and Activated Arenes with Perfluoroalkanesulfenic Acids

Jia-Hui Li, Jia-Hong Xu, Min Jiang, Li-Ping Song, Jin-Tao Liu

Eur. J. Org. Chem., 2022, 37, e202200842
https://doi.org/10.1016/j.cclet.2022.01.077



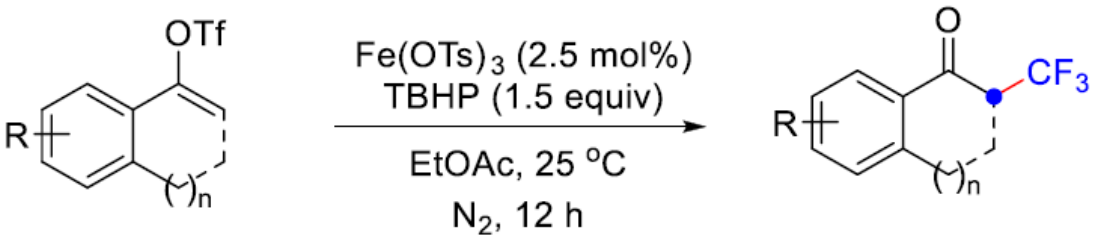
15 examples
yield up to 75%

Organic Letters

Switchable In Situ SO_2 Capture and CF_3 Migration of Enol Triflates with Peroxyl Compounds under Iron Catalysis

Qi-Chao Shan, Shuai Liu, Yuncheng Shen, Mingming Ma, Xin-Hua Duan, Pin Gao, Li-Na Guo

Org. Lett., 2022, 24, 6653-6657
https://doi.org/10.1021/acs.orglett.2c02663

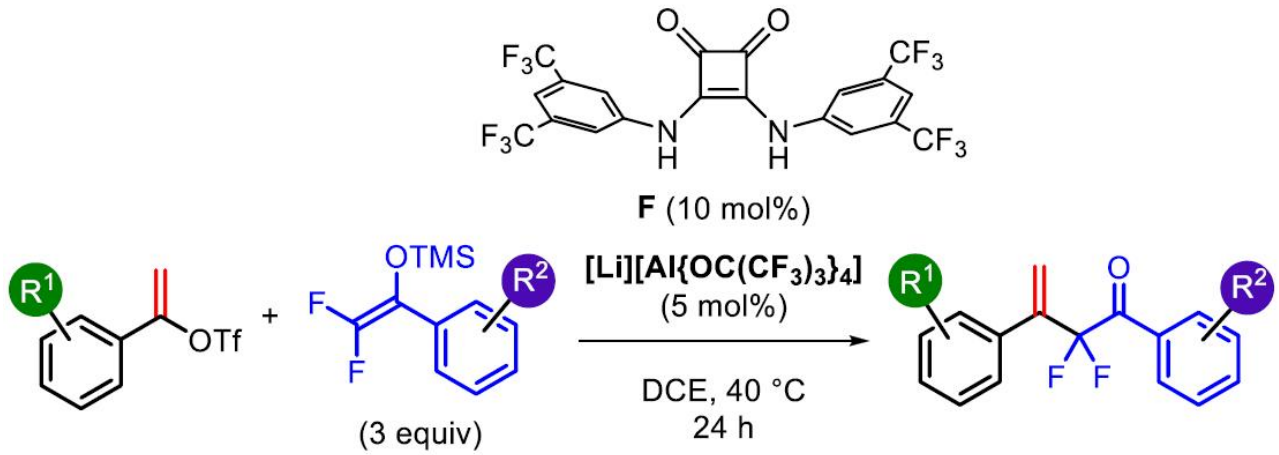


9 examples
yield up to 84%

Squaramide/Li+-Catalyzed Direct SN1-Type Reaction of Vinyl Triflates with Difluoroenoxysilanes through Vinyl Cations

Yan Chen, Vincent Gandon, and Christophe Bour

Org. Lett., 2022, 24, 6978-6982
https://doi.org/10.1021/acs.orglett.2c02793

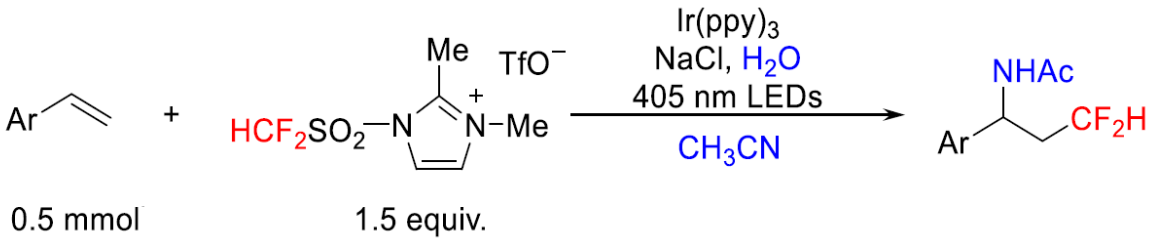


20 examples
yield up to 87%

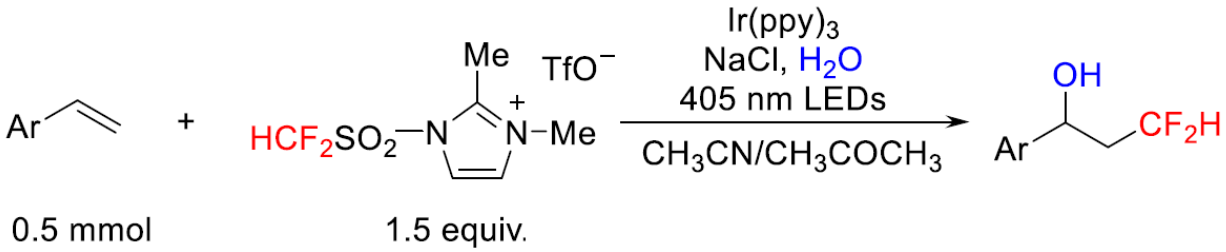
Difluoromethylsulfonyl Imidazolium Salt for Difluoromethylation of Alkenes

Feng-Xu Zhang, Jin-Hong Lin*, and Ji-Chang Xiao*

Org. Lett., 2022, 24, 7611-7616
https://doi.org/10.1021/acs.orglett.2c03073



17 examples
yield up to 83%

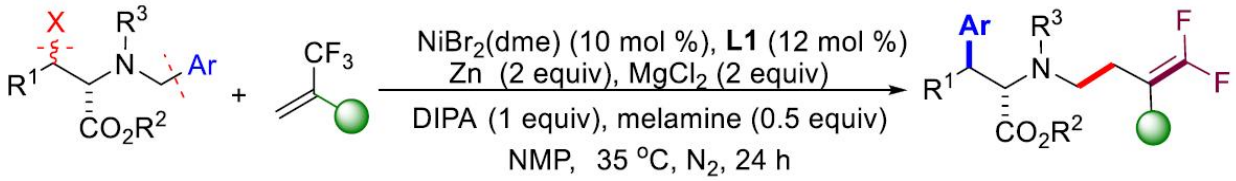


14 examples
yield up to 9682

Nickel-Catalyzed Radical Heck-Type C(sp3)–C(sp2) Coupling Cascades Enabled by Bromoalkane-Directed 1,4-Aryl Shift: Access to Olefinated Arylalanines

Jian Liu, Yu Hong, Yin-Ling Liu, Jing-Ying Tan, Hao-Miao Liu, Gang-Liang Dai, Shi-Lu Chen, Ting Liu, Jin-Heng Li, and Shi Tang

Org. Lett., 2022, 24, 8192-8196
https://doi.org/10.1021/acs.orglett.2c03250



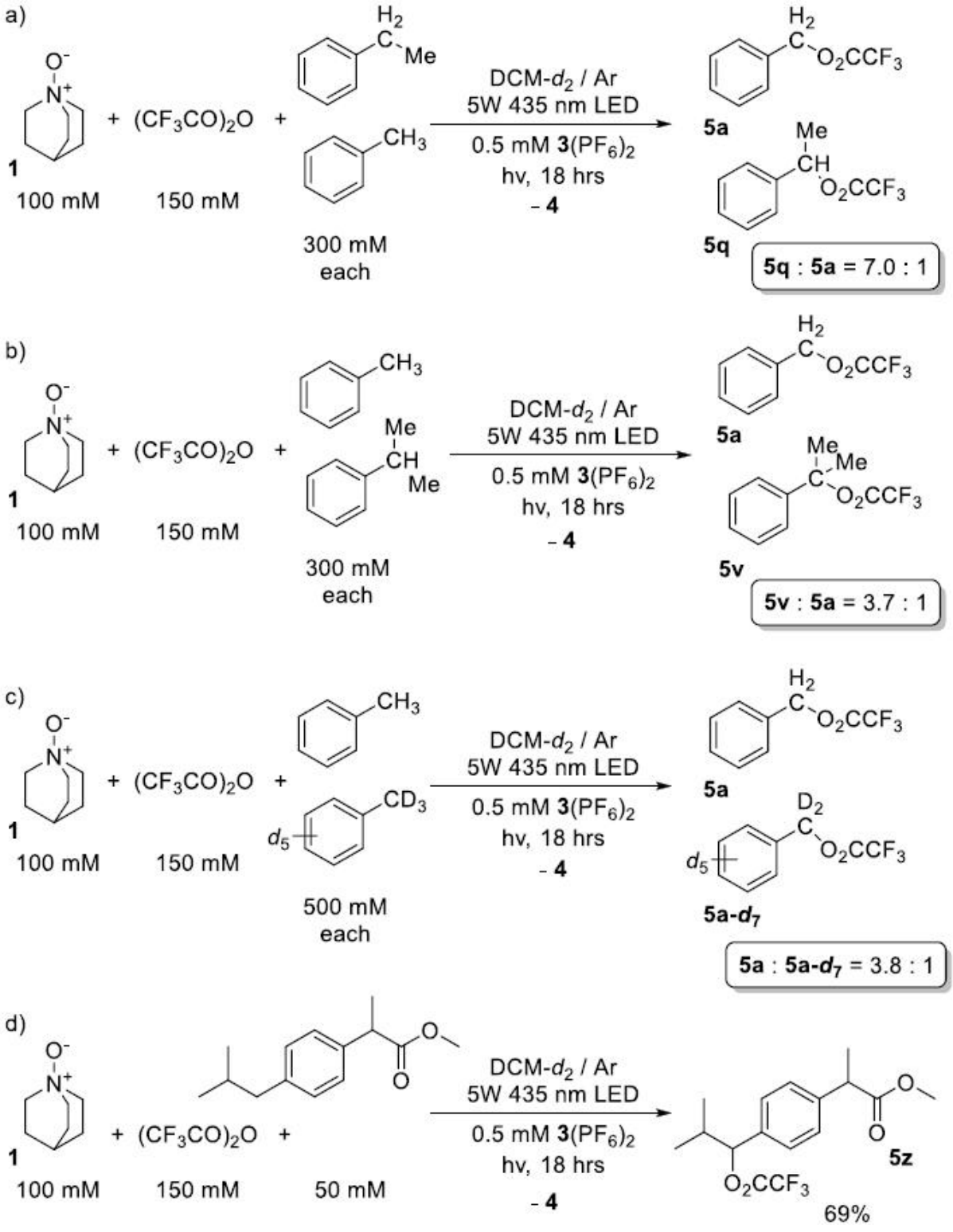
L1 = 4,4′-di-*tert*-butyl-2,2′-bipyridine

19 examples
yield up to 76%

Oxidative Trifluoroacetoxylation of 1°, 2°, and 3° Benzylic C(sp^3)–H Bond Donors Using N-Trifluoroacetoxyquinuclidinium Salts under Photoredox Catalysis

Michael Hitt and Andrei N. Vedernikov

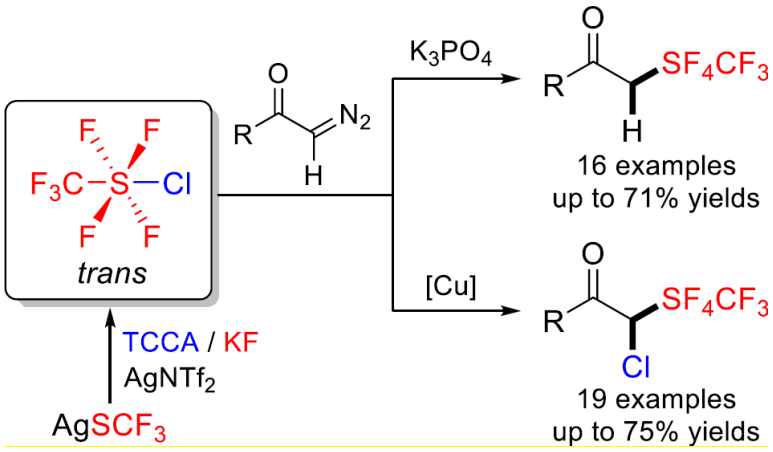
Org. Lett., 2022, 24, 7737-7741
https://doi.org/10.1021/acs.orglett.2c02946

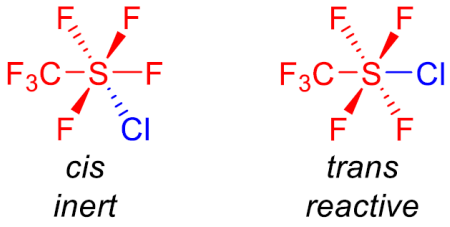


trans-Trifluoromethyltetrafluorosulfanyl Chloride: Selective Synthesis and Reaction with Diazo Compounds

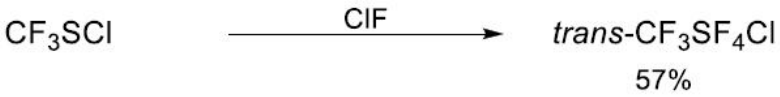
Xin Zhao, Jia-Yi Shou, Josiah J. Newton, and Feng-Ling Qing

Org. Lett., 2022, 24, 8412-8416
https://doi.org/10.1021/acs.orglett.2c03540

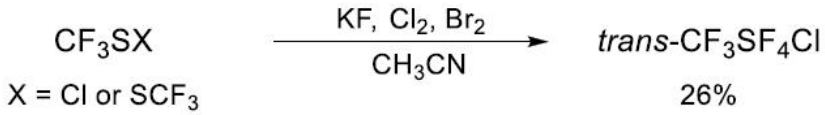




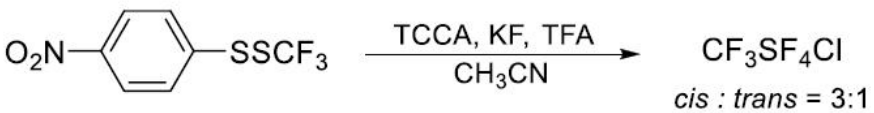
a) Shreeve, 1973



b) Welch, 2018



c) Togni, 2019



d) This work