Journal of Fluorine Chemistry

Novel synthetic method of 1,1,2,2-tetrafluoro-2-[(1,2,2-trifluoroethenyl) oxy]ethanesulfonyl fluoride

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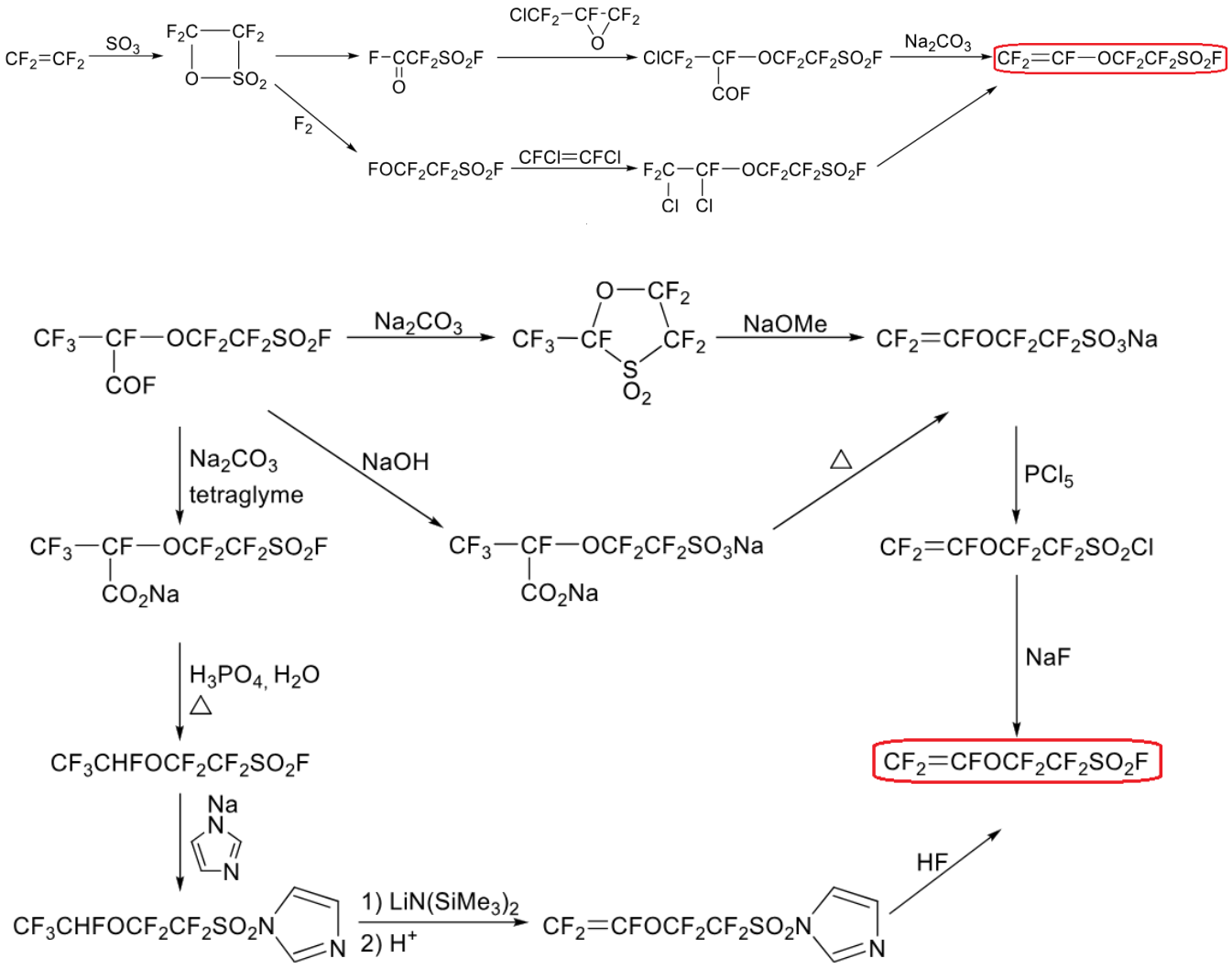
Abstract: A novel synthetic method of 1,1,2,2-tetrafluoro-2-[(1,2,2-trifluoroethenyl)oxy]ethanesulfonyl fluoride, the raw material for perfluorinated polymer electrolyte membranes, was developed from the starting material $CF_3CF(COF)O(CF_2)_2SO_2F$ via the ring-opening reaction of cyclic compound and the cleavage reaction of vinyl sulfonic anhydride using commercially available reagents.



Introducing CF_3 group at alkenyl C=C bond. Recent developments

Karolina Paszek, Henryk Koroniak, Katarzyna Koroniak–Szejn

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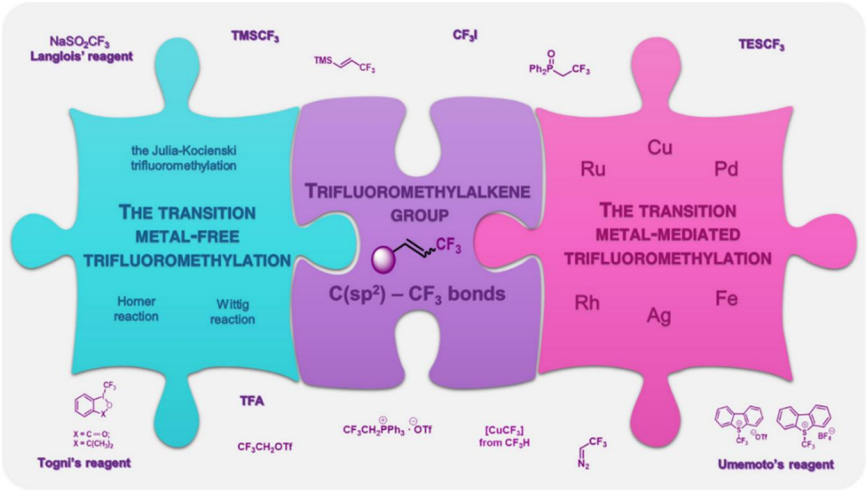


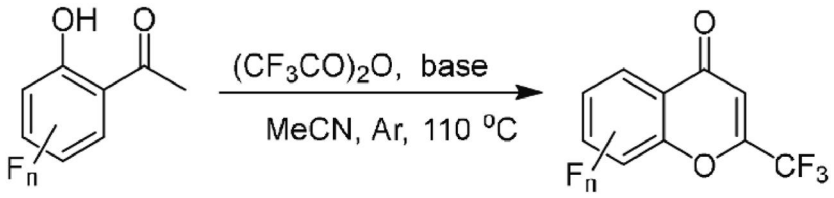
Abstract: Recently, significant interest has been developed in pharmaceuticals containing fluorine The biological effects depend on the number and type of fluorine groups in the drug molecule. Much attention has been also paid to improve biological activity, *in vivo* stability, or bioavailability by studying the chemical modification of peptide structure. The most frequently studied fluorine-containing functional group is the trifluoromethyl group, which also occurs as a $C(sp^2)$–CF_3 bond. The trifluoromethyl alkyl group structure helps the peptide maintain its original β-turn structure, effectively mimicking the natural peptide bond, which allows it to function as its isostere. Therefore, the development of methods for synthesizing the trifluoromethylalkene group is becoming increasingly popular due to the potential of the products as building blocks of bioactive molecules. This review describes various methods for the preparation of the compounds with a trifluoromethylalkene group using trifluorinating reagents via the transition metal-mediated and the transition metal-free trifluoromethylation reactions.

Conclusion: As demonstrated in this review, there are numerous methodologies available for incorporating trifluoromethylalkene motif into the architecture of chemical compounds. The approaches based on the traditional and well-known olefination methodologies with the direct or prior use of the trifluoromethylation reagents as well as the use of the transition metal catalyzed trifluoromethylation reactions (Rh, Cu, Pd, Fe, Ag, Ru) give a broad range of the possibilities for the development of innovative therapeutic agents, which may prove advantageous in addressing current challenges in biomedical applications.

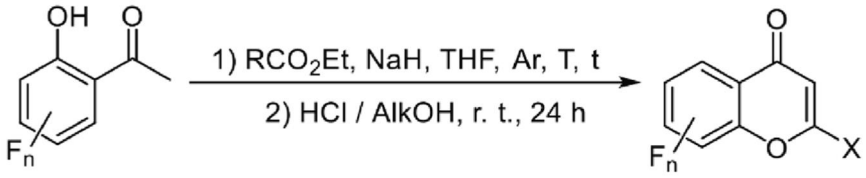
Synthesis of fluorinated 4H-chromen-4-ones from 2-hydroxyacetophenones and *in vitro* evaluation of their anticancer and antiviral activity

Larisa Politanskaya, Jiaying Wang, Yulia Meshkova, Mariya Marenina, Tatyana Tolstikova, Maria Niukalova, Iana Esaulkova, Alexandrina Volobueva, Vladimir Zarubaev

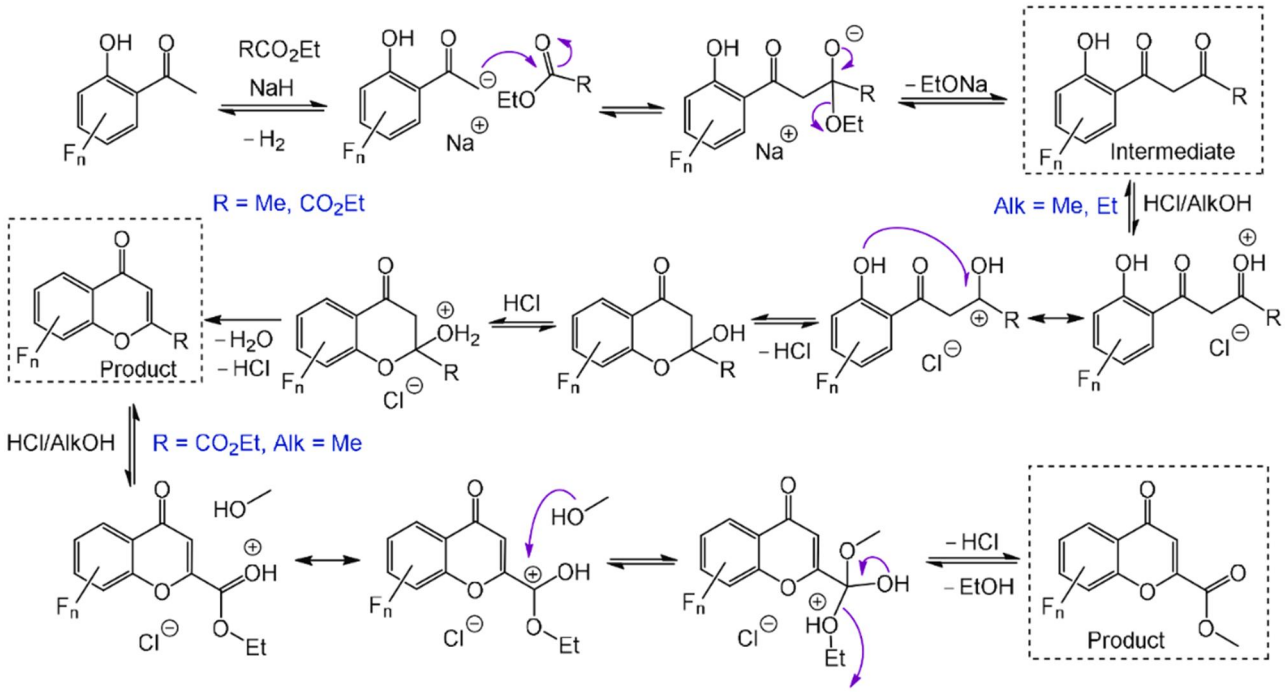
Journal of Fluorine Chemistry, 2025, 283-284, 110421
https://doi.org/10.1016/j.jfluchem.2025.110421



3 examples
yield up to 71%



25 examples
yield up to 99%



Radical 1,2-fluoroalkylation/stannylation of terminal alkynes

Vyacheslav I. Supranovich, Alexander D. Dilman

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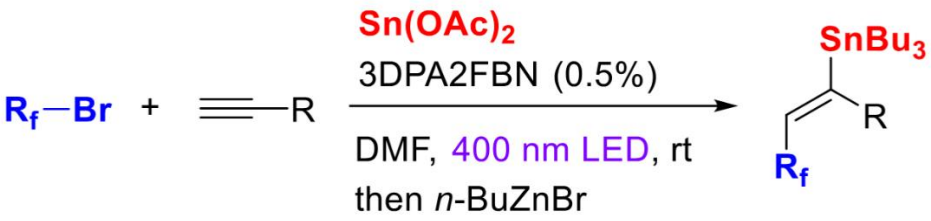

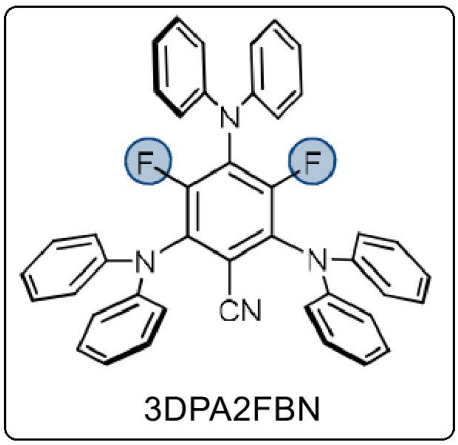

10 examples
yield up to 84%