

## Journal of Fluorine Chemistry

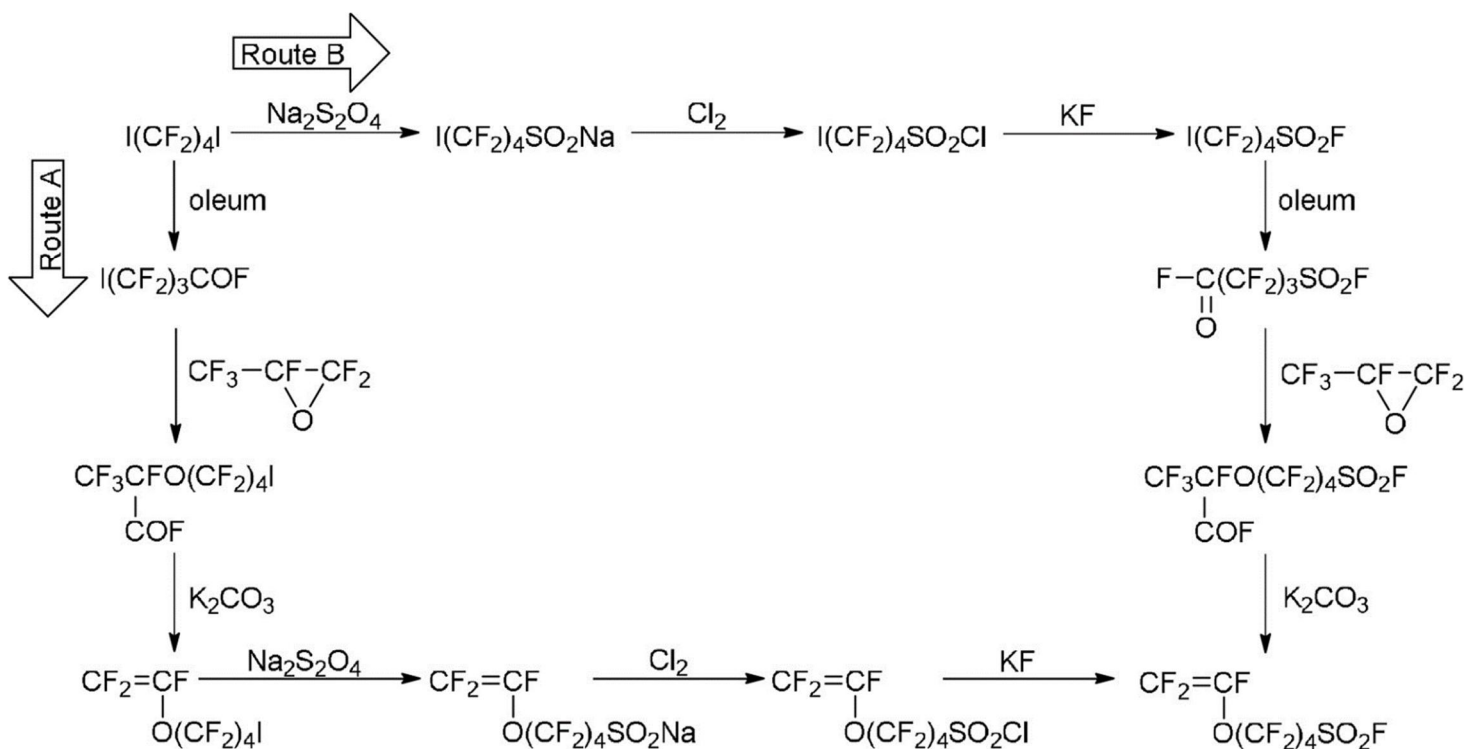
### Synthesis of 1,1,2,2,3,3,4,4-octafluoro-4-[(1,2,2-trifluoroethenyl)oxy]butanesulfonyl fluoride

Nobuyuki Uematsu, Hideo Saito, Masa-aki Sasayama, Sayuri Aoki, Mikihiko Nakamura, Nobuto Hoshi, Masanori Ikeda

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- Two synthetic routes of 1,1,2,2,3,3,4,4-octafluoro-4-[(1,2,2-trifluoroethenyl)oxy]butanesulfonyl fluoride (SSC monomer) were developed.
- SSC monomer was prepared from I(CF<sub>2</sub>)<sub>4</sub>I using the same commercially available reagents but in different order of use.

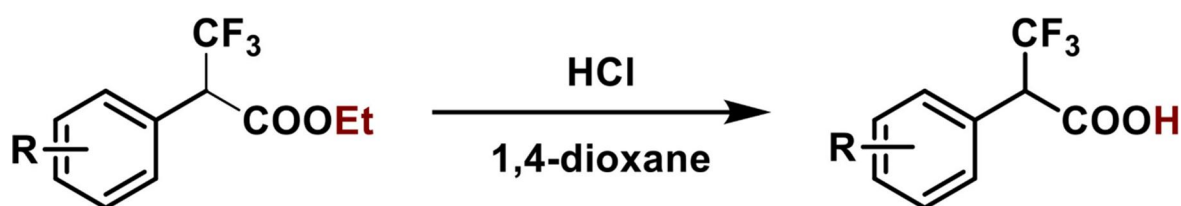


## Non-defluorinative Hydrolysis of $\alpha$ - and $\beta$ -Fluorinated Carboxylic Acid Esters

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- *Non-defluorinative*
- *Non-racemic*
- *Highly efficient*

**Abstract:** Fluorinated carboxylic acids play a crucial role in pharmaceuticals and agrochemicals. However, the common synthetic routes involving the hydrolysis of carboxylic acid esters often face challenges such as defluorination and decarboxylation. These obstacles are overcome by utilizing an acid hydrolysis approach, leading to the selective and effective synthesis of fluorinated carboxylic acids. This method is distinguished by its high efficiency (up to 92% yield), versatility across various substrates including  $\alpha$ - and  $\beta$ -fluorinated phenylacetates and  $\alpha$ -heteroaryl esters, complete retention of fluorine substituents (non-defluorinative) in fluorinated carboxylic acid esters. Moreover, this protocol ensures complete stereoretention for chiral  $\alpha$ -trifluoromethyl carboxylic esters and non-fluorinated carboxylic esters, further highlighting its synthetic utility in asymmetric transformations.

**Conclusion:** We developed a hydrochloric acid-mediated hydrolysis protocol for  $\alpha$ -/ $\beta$ -fluorine-bearing phenylacetic acid ethyl esters, delivering target carboxylic acids in moderate to high yields (42–89 %) with complete retention of fluorine substituents. The methodology demonstrates broad adaptability, with substrate scope readily extendable to diverse halogens (Cl and Br), highlighting its versatility for  $\alpha$ -functionalized carboxylic acid synthesis.

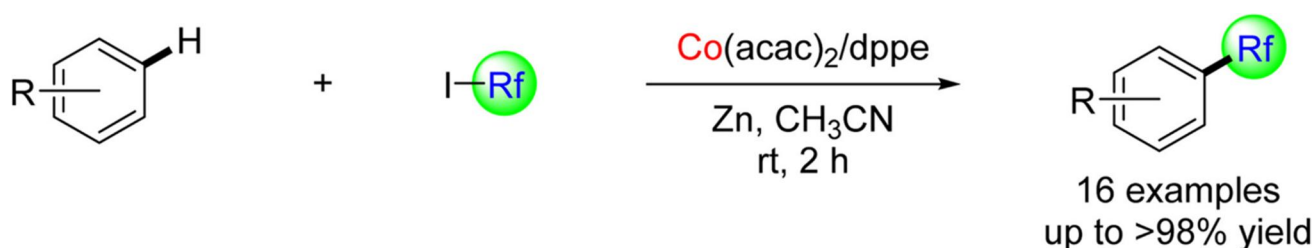
## Cobalt-catalyzed C-H perfluoroalkylation of anilines

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- Cobalt-catalyzed perfluoroalkylation of anilines under mild conditions was developed.
- The combination of Co(acac)<sub>2</sub>/dppe/Zn efficiently catalyzed perfluoroalkylation.
- The reaction proceeds by a radical addition-like reaction.



## Direct S-difluoromethylation of thiols: A facile synthetic route to difluoromethyl thioethers

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This review gives an overview of the synthesis of difluoromethyl thioethers through the *S*-difluoromethylation of corresponding aromatic thiols. The review has been classified based on the type of difluoromethylating agents (*i.e.*, organosulfur-based difluoromethylating agents, organosilicon-based difluoromethylating agents, organophosphorus-based difluoromethylating agents) and surveyed the literature up until the end of 2024.