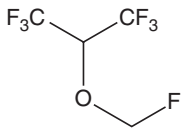
PRODUCT INFORMATION

Sevoflurane

Item No. 23996

CAS Registry No.: 28523-86-6
Formal Name: 1,1,1,3,3,3-hexafluoro-2-(fluoromethoxy)-propane
Synonyms: Fluoromethyl 1,1,1,3,3,3-Hexafluoroisopropyl ester, Fluoromethyl 1,1,1,3,3,3-Hexafluoro-2-propyl ester
MF: $C_4H_3F_7O$
FW: 200.1
Purity: ≥95%
Supplied as: A neat oil
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Sevoflurane is supplied as a neat oil. A stock solution may be made by dissolving the sevoflurane in the solvent of choice, which should be purged with an inert gas. Sevoflurane is miscible in organic solvents such as ethanol, DMSO, and dimethyl formamide.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of sevoflurane can be prepared by directly dissolving the neat oil in aqueous buffers. Sevoflurane is miscible in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

Description

Sevoflurane is a halogenated ether with anesthetic properties.[1] It enhances the activity of $GABA_A$ and glycine receptors and inhibits the activity of nicotinic acetylcholine receptors (nAChRs) and glutamate receptors. Sevoflurane enhances the responses of $\alpha_2\beta_1$ subunit-containing $GABA_A$ and α_1 subunit-containing glycine receptors at submaximal agonist concentrations in HEK293 cells (EC_{50}s = 0.45 and 0.36 mM, respectively).[2] Sevoflurane (360 µM) also increases the amplitude of $GABA_A$ receptor responses to GABA stimulation for receptors with an $\alpha_1\beta_2\gamma_2$ subunit composition.[3] It inhibits binding of the high affinity nicotinic agonist epibatidine to nAChRs in mouse brain membranes (IC_{50} = 0.77 mM).[4] Formulations containing sevoflurane have been used in the induction and maintenance of general anesthesia.

References

1. Campagna, J.A., Miller, K.W., Phil, D., *et al.* Mechanisms of actions of inhaled anesthetics. *N. Engl. J. Med.* **348(21)**, 2110-2124 (2003).
2. Krasowski, M.D. and Harrison, N.L. The actions of ether, alcohol and alkane general anaesthetics on $GABA_A$ and glycine receptors and the effects of TM2 and TM3 mutations. *Br. J. Pharmacol.* **129(4)**, 731-743 (2000).
3. Nishikawa, K. and Harrison, N.L. The actions of sevoflurane and desflurane on the gamma-aminobutyric acid receptor type A: Effects of TM2 mutations in the alpha and beta subunits. *Anesthesiology* **99(3)**, 678-684 (2003).
4. Rada, E.M., Tharakan, E.C., and Flood, P. Volatile anesthetics reduce agonist affinity at nicotinic acetylcholine receptors in the brain. *Anesth. Analg.* **96(1)**, 108-111 (2003).

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