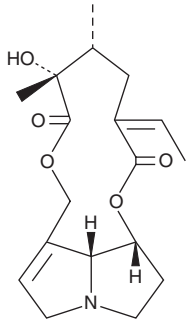
PRODUCT INFORMATION

Senecionine

Item No. 25145

CAS Registry No.: 130-01-8
Formal Name: (3Z,5R,6R,14aR,14bR)-3-ethylidene-3,4,5,6,9,11,13,14,14a,14b-decahydro-6-hydroxy-5,6-dimethyl-[1,6]dioxacyclododecino[2,3,4-gh]pyrrolizine-2,7-dione
Synonyms: NSC 89935, (-)-Senecionine
MF: $C_{18}H_{25}NO_5$
FW: 335.4
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Senecionine is supplied as a crystalline solid. A stock solution may be made by dissolving the senecionine in the solvent of choice. Senecionine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of senecionine in these solvents is approximately 1, 2, and 5 mg/ml, respectively.

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 senecionine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of senecionine in PBS, pH 7.2, is approximately 0.1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Senecionine is a pyrrolizidine alkaloid that has been found in *S. vulgaris* and has hepatotoxic properties.[1] It is metabolized by the cytochrome P450 (CYP) isoform CYP3A in the liver to the detoxification product senecionine N-oxide and reactive metabolites including dehydropyrrolizidine alkaloids and dehydrotetronecine.[2,3] Senecionine (20 µM) induces mitochondrial depolarization and fragmentation in primary cultured mouse hepatocytes and increases apoptosis in a concentration-dependent manner.[2] In rats, senecionine (35 mg/kg, p.o.) induces liver injury, increases serum levels of bilirubin (Item No. 17161) and various bile acids, including taurocholic acid, glycocholic acid, and deoxycholic acid, and increases the activity of alanine aminotransferase and aspartate aminotransferase in serum.[1] Senecionine-induced hepatotoxicity is associated with lipid peroxidation and glutathione depletion.

References

1. Xiong, A., Yang, F., Fang, L., *et al. Chem. Res. Toxicol.* **27(5)**, 775-786 (2014).
2. Yang, X., Wang, H., Ni, H.-M., *et al. Redox Biol.* **12**, 264-273 (2017).
3. Miranda, C.L., Reed, R.L., Guengerich, F.P., *et al. Carcinogenesis* **12(3)**, 515-519 (1991).

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