

Product Data Sheet

Product Name: Senecionine (Senecionan-11,16-dione, 12-hydroxy-)

Cat. No.: GC30459

Chemical Properties

Cas. No. 130-01-8

SMILES O=C1O[C@@]2([H])[C@]3([H])N(CC=C3COC([C@](C)(O)[C@H](C)C/C1=C/C)=O)CC2

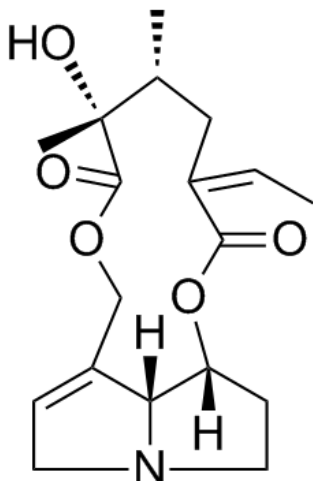
Formula $C_{18}H_{25}NO_5$ M.Wt 335.39

Solubility Soluble in DMSO, DMF: 5 mg/ml, Ethanol: 1 mg/ml, PBS (pH 7.2): 0.1 mg/ml
Storage Store at 2-8°C, protect from light

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Caution: Product has not been fully validated for medical applications. For research use only.

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Animal experiment: Rats[1] Swiss albino rats weighing 155-175 g are incubated for 3 consecutive days with seneciophylline and senecionine at a daily dose of 40 or 80 mg/kg body wt. Control animals received normal saline only. The animals are killed 24 h after the last dose. The livers are removed, weighed and then homogenized in 1.15% KCl, 0.02 HEPES (pH 7.4)[1].

References:

- [1]. Wang C, et al. The comparative pharmacokinetics of two pyrrolizidine alkaloids, senecionine and adonifoline, and their main metabolites in rats after intravenous and oral administration by UPLC/ESIMS. Anal Bioanal Chem. 2011 Jul;401(1):275-87.
- [2]. Kakrani HK, et al. Effect of seneciophylline and senecionine on hepatic drug metabolizing enzymes in rats. J Ethnopharmacol. 1984 Dec;12(3):271-8.
- [3]. Tu ZB, et al. Identification of senecionine and senecionine N-oxide as antifertility constituents in Senecio vulgaris. J Pharm Sci. 1988 May;77(5):461-3.

Background

Senecionine is a pyrrolizidine alkaloid isolated from Senecio vulgaris. Senecionine is toxic to animals and humans.

Pyrrolizidine alkaloids (PAs) are considered to be one of the most hepatotoxic groups of compounds of plant origin and are present in about 3% of the world's flowering plants. Most PAs represent a considerable health hazard to both livestock and humans through the consumption of plants and PA-contaminated products such as milk, honey, herbal teas, and medicines[1].

Upon intravenous administration and oral administration of Senecionine and Adonifoline, significant differences in pharmacokinetics were observed, with the Senecionine and Adonifoline being absorbed fast with lower bioavailability and being quickly metabolized to PA N-oxides and hydroxylation products of PAs or their N-oxides[1]. Senecionine fails to stimulate epoxide hydrolase, it diminishes the activity of glutathione-S-transferase, aminopyrine demethylase and AHH[2]. Twice-weekly injections of a third constituent, senecionine, beginning on Day 12 or later, results in premature deliveries in three of seven rats, and the pups from all litters are stillborn or die shortly

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after birth[3].

[1]. Wang C, et al. The comparative pharmacokinetics of two pyrrolizidine alkaloids, senecionine and adonifoline, and their main metabolites in rats after intravenous and oral administration by UPLC/ESIMS. Anal Bioanal Chem. 2011 Jul;401(1):275-87. [2]. Kakrani HK, et al. Effect of seneciophylline and senecionine on hepatic drug metabolizing enzymes in rats. J Ethnopharmacol. 1984 Dec;12(3):271-8. [3]. Tu ZB, et al. Identification of senecionine and senecionine N-oxide as antifertility constituents in Senecio vulgaris. J Pharm Sci. 1988 May;77(5):461-3.

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