

Product Data Sheet

Product Name: Eleutheroside E

Cat. No.: GN10300

Chemical Properties

Cas. No. 39432-56-9

Chemical Name (2R,3S,4R,5R,6S)-2-[4-[6-[3,5-dimethoxy-4-[(2S,3R,4S,5S,6R)-3,4,5-trihydroxy-6-(hydroxymethyl)oxan-2-yl]oxyphenyl]-1,3,3a,4,6,6a-hexahydrofuro[3,4-c]furan-3-yl]-2,6-dimethoxyphenoxy]-6-(hydroxymethyl)oxane-3,4,5-triol

SMILES COC1=CC(=CC(=C1OC2C(C(C(C(O2)CO)O)O)O)OC)C3C4COC(C4CO3)C5=CC(=CC(=C5)OC)OC6C(C(C(C(O6)CO)O)O)O)OC

Formula C₃₄H₄₆O₁₈

M.Wt 742.72

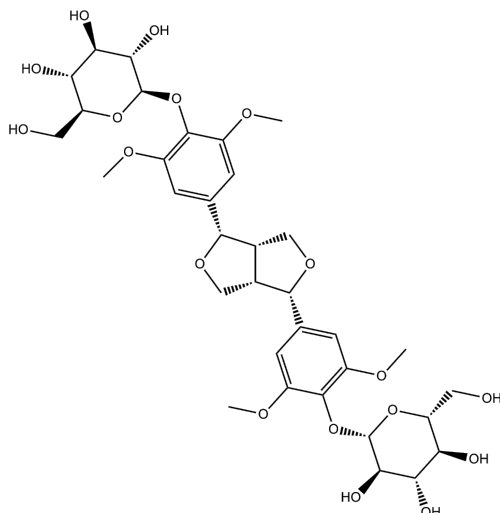
Solubility ≥ 26.2mg/mL in DMSO

Storage Store at 2-8°C

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

Cell experiment [1]:

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Cell lines Hela and SiHa

Preparation Method After being administered with 0 and 25μM Eleutheroside E, Hela and SiHa cells were collected, washed with phosphate-buffered saline (PBS), resuspended by 0.5ml of bind buffer, and stained with 5μl propidium iodide (PI) and 5μl Annexin V/FITC at room temperature for 15min. The cell apoptosis was analysed on a FACScan flow cytometry using CellQuest software.

Reaction
Conditions 25μM; 72h

Applications Eleutheroside E inhibited the cell viability with promoted apoptosis in Cervical cancer (CC) cells.

Animal experiment [2]:

Animal models male Sprague-Dawley rats; 100–110g; 4–5 weeks

Preparation Method The all 42 rats were divided into the following six groups (n = 7) in a manner of random number table: (1) Sham, (2) Eleutheroside E, (3) HAPE, (4) Eleutheroside E 50mg/kg + HAPE, (5) Eleutheroside E 100mg/kg + HAPE and (6) Eleutheroside E 100mg/kg + Nig 4mg/kg + HAPE groups. Rats in the Sham and HAPE groups were treated with normal saline intraperitoneal injections, whereas those in the other four groups were injected intraperitoneally with corresponding doses of Eleutheroside E for 3 days. Nig, an activator of NLRP3, was used to explore the efficacy of Eleutheroside E on NLRP3-mediated pyroptosis in HAPE. Rats in the (6) group were injected intraperitoneally with Nig 30min before the last dose of Eleutheroside E.

Dosage form 50 and 100mg/mice; 3 days; i.p.

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Applications

Pre-treatment with Eleutheroside E (50 and 100 mg/kg; 3 days; i.p.) can improve the pathological manifestations of high-altitude pulmonary edema (HAPE), such as alveolar hemorrhage, thickening of the alveolar walls, inflammatory cell infiltration, and alveolar and interstitial edema, with the effects being positively related to the dose.

References:

- [1] Cai Y, Zhang J, Xin T, Xu S, Liu X, Gao Y, Huang H. Eleutheroside E functions as anti-cervical cancer drug by inhibiting the phosphatidylinositol 3-kinase pathway and reprogramming the metabolic responses. *J Pharm Pharmacol*. 2022 Sep 1;74(9):1251-1260.
- [2] Shen Z, Huang D, Jia N, Zhao S, Pei C, Wang Y, Wu Y, Wang X, Shi S, Wang F, He Y, Wang Z. Protective effects of Eleutheroside E against high-altitude pulmonary edema by inhibiting NLRP3 inflammasome-mediated pyroptosis. *Biomed Pharmacother*. 2023 Nov;167:115607.

Background

Eleutheroside E (EE) is a principal active component of *Acanthopanax senticosus* that possesses anti-fatigue, neuroprotective and immunomodulatory activities^[1].

In vitro, Eleutheroside E (100, 300 and 500 μ M; 48h) can improve the 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) -induced apoptosis of PC-12 cells by increasing the mitochondrial membrane potential and reducing the level of intracellular reactive oxygen species (ROS)^[2]. Eleutheroside E (25 μ M; 72h) inhibited the cell viability with promoted apoptosis in Cervical cancer (CC) cells^[3]. Eleutheroside E (30, 60 and 100mM; 12h) administration attenuated the cardiomyocyte apoptosis induced by hypoxia-reoxygenation (H/R) injury^[4].

In vivo, Pre-treatment with Eleutheroside E (50 and 100 mg/kg; 3 days; i.p.) can improve the pathological manifestations of high-altitude pulmonary edema (HAPE), such as alveolar hemorrhage, thickening of the alveolar walls, inflammatory cell infiltration, and alveolar and interstitial edema, with the effects being positively related to the dose^[1]. Supplementation with Eleutheroside E (50 mg/kg/d; 4 weeks) can prevent radiation-induced cognitive impairment and damage of neuron morphology and ultrastructures in the hippocampus of mice^[5]. Eleutheroside E (10mg/kg; 20 days; gavage) alleviates cerebral ischemia-reperfusion injury in a 5-hydroxytryptamine receptor 2C (Htr2c)-dependent manner

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in rats^[6].

References:

- [1] Shen Z, Huang D, Jia N, Zhao S, Pei C, Wang Y, Wu Y, Wang X, Shi S, Wang F, He Y, Wang Z. Protective effects of Eleutheroside E against high-altitude pulmonary edema by inhibiting NLRP3 inflammasome-mediated pyroptosis. *Biomed Pharmacother.* 2023 Nov;167:115607.
- [2] Yao Y, Liao C, Qiu H, Liang L, Zheng W, Wu L, Meng F. Effect of Eleutheroside E on an MPTP-Induced Parkinson's Disease Cell Model and Its Mechanism. *Molecules.* 2023 Apr 29;28(9):3820.
- [3] Cai Y, Zhang J, Xin T, Xu S, Liu X, Gao Y, Huang H. Eleutheroside E functions as anti-cervical cancer drug by inhibiting the phosphatidylinositol 3-kinase pathway and reprogramming the metabolic responses. *J Pharm Pharmacol.* 2022 Sep 1;74(9):1251-1260.
- [4] Wang S, Yang X. Eleutheroside E decreases oxidative stress and NF-κB activation and reprograms the metabolic response against hypoxia-reoxygenation injury in H9c2 cells. *Int Immunopharmacol.* 2020 Jul;84:106513.
- [5] Song C, Duan F, Ju T, Qin Y, Zeng D, Shan S, Shi Y, Zhang Y, Lu W. Eleutheroside E supplementation prevents radiation-induced cognitive impairment and activates PKA signaling via gut microbiota. *Commun Biol.* 2022 Jul 8;5(1):680.
- [6] Liu Z, Gao W, Xu Y. Eleutheroside E alleviates cerebral ischemia-reperfusion injury in a 5-hydroxytryptamine receptor 2C (Htr2c)-dependent manner in rats. *Bioengineered.* 2022 May;13(5):11718-11731.

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