

Product Data Sheet

Product Name: Senkyunolide I

Cat. No.: GN10801

Chemical Properties

Cas. No. 94596-28-8

Chemical Name (3Z,6R,7R)-3-butylidene-6,7-dihydroxy-4,5,6,7-tetrahydro-2-benzofuran-1-one

SMILES CCCC=C1C2=C(C(C(CC2)O)O)C(=O)O1

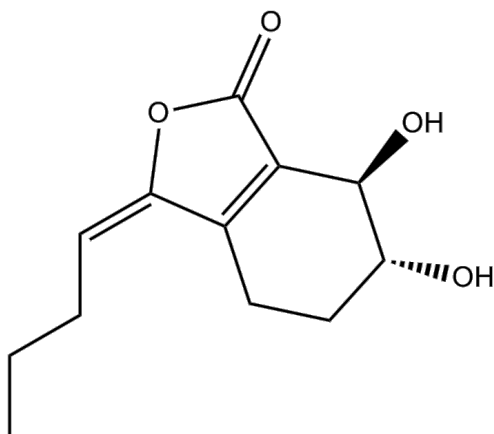
Formula $C_{12}H_{16}O_4$ M.Wt 224.25

Solubility DMSO : 100 mg/mL (445.93 mM; Need ultrasonic) Storage 4°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.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

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Cell experiment [1]:

Cell lines	Neuro2a cells
Preparation Method	Cells were seeded at 2×10^4 cells into 96-well plates and grown for 48h, and then were treated with 150mM glutamate for 24h to obtain the glutamate-induced excitotoxicity cell model. Cells were pre-treated with Senkyunolide I for 2h prior to incubation with glutamate. After 24h, cell viability was measured.
Reaction Conditions	400μM; 2h
Applications	Senkyunolide I significantly attenuated glutamate-induced cytotoxicity, increased the cell viability.

Animal experiment [2]:

Animal models	Male C57BL/6J mice
Preparation Method	The mice were administered with water containing 1mg/kg/day BAPN (β-aminopropionitrile) for 4 weeks, followed by a 3-day infusion of angiotensin II (1000ng/kg/min) via mini-osmotic pumps to induce thoracic aortic aneurysm and aortic dissection (TAAD). Intraperitoneal injections of 1 % DMSO or Senkyunolide I (36mg/kg) were administered at days 7, 14, 21, and 28. Detecting apoptosis in the aortic tissue and immunofluorescence of ROS after sacrificing.
Dosage form	36mg/kg; 4 weeks; qow; i.p.
Applications	Senkyunolide I attenuated the ROS and apoptosis in the aortic tissue compared with the model group.

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References:

- [1] Wang M, Hayashi H, Horinokita I, et al. Neuroprotective effects of Senkyunolide I against glutamate-induced cells death by attenuating JNK/caspase-3 activation and apoptosis [J]. *Biomedicine & pharmacotherapy*, 2021, 140: 111696.
- [2] Zhao K, Zhu H, He X, et al. Senkyunolide I ameliorates thoracic aortic aneurysm and dissection in mice via inhibiting the oxidative stress and apoptosis of endothelial cells [J]. *Biochimica et biophysica acta Molecular basis of disease*, 2023, 1869(7): 166819.

Background

Senkyunolide I is a natural phthalide existing in *L. chuanxiong* and *A. sinensis* with good blood-brain barrier permeability, which has the potential to become a cardio-cerebral vascular drug candidate [1]. Its pharmacological effects include analgesic, anti-inflammatory, antioxidant, anti-thrombotic, anti-tumor effects, alleviating ischemia-reperfusion injury, etc [1].

Senkyunolide I (400μM; 2h) significantly attenuated glutamate-induced cytotoxicity, increased the cell viability of Neuro2a cells [2]. Senkyunolide I (20, 50, 100μM; 24h) suppressed the fibrotic markers (α -Sma, Col1a1, and Timp1) in the TGF- β 1-stimulated hepatic stellate cells in a dose-dependent manner [3]. Senkyunolide I (200, 400μM; 24h) promoted neural stem/progenitor cells proliferative capacity [4].

Senkyunolide I (36mg/kg; 4 weeks; qow; i.p.) attenuated the ROS and apoptosis in the aortic tissue in the TAAD (thoracic aortic aneurysm and aortic dissection) model C57BL/6J mice [5]. Senkyunolide I (72mg/kg; i.p.) reduced TNF- α , IL-1 β levels in sepsis-associated encephalopathy model Sprague-Dawley rats [6].

References:

- [1] Huang Y, Wu Y, Yin H, et al. Senkyunolide I: a review of its phytochemistry, pharmacology, pharmacokinetics, and drug-likeness [J]. *Molecules*, 2023, 28(8): 3636.
- [2] Wang M, Hayashi H, Horinokita I, et al. Neuroprotective effects of Senkyunolide I against glutamate-induced cells death by attenuating JNK/caspase-3 activation and apoptosis [J]. *Biomedicine & pharmacotherapy*, 2021, 140: 111696.

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- [3] Zhu M, Ren L, Xiao W, et al. Senkyunolide I suppresses hepatic stellate cell activation and liver fibrosis by reprogramming VDR-dependent fatty acid metabolism [J]. Chinese medicine, 2025, 20(1): 85.
- [4] Wang M, Hayashi H, Horinokita I, et al. Role of senkyunolide I in the promotion of neural stem/progenitor cell proliferation via the Akt/ β -catenin pathway [J]. Biomedicine & pharmacotherapy, 2023, 168: 115683.
- [5] Zhao K, Zhu H, He X, et al. Senkyunolide I ameliorates thoracic aortic aneurysm and dissection in mice via inhibiting the oxidative stress and apoptosis of endothelial cells [J]. Biochimica et biophysica acta Molecular basis of disease, 2023, 1869(7): 166819.
- [6] Cao H, Liu T, Xu M. Senkyunolide I improves septicemia-induced brain dysfunction via regulating Nrf2 and astrocyte activity [J]. Biotechnology and applied biochemistry, 2025, 72(5): 1385-1394.

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