

Product Data Sheet

Product Name: Isovitexin

Cat. No.: GN10804

Chemical Properties

Cas. No. 38953-85-4 ; 29702-25-8

Chemical Name 5,7-dihydroxy-2-(4-hydroxyphenyl)-6-[(2S,3R,4R,5S,6R)-3,4,5-trihydroxy-6-(hydroxymethyl)oxan-2-yl]chromen-4-one

SMILES C1=CC(=CC=C1C2=CC(=O)C3=C(C(=C(C=C3O2)O)C4C(C(C(C(O4)CO)O)O)O)O)O

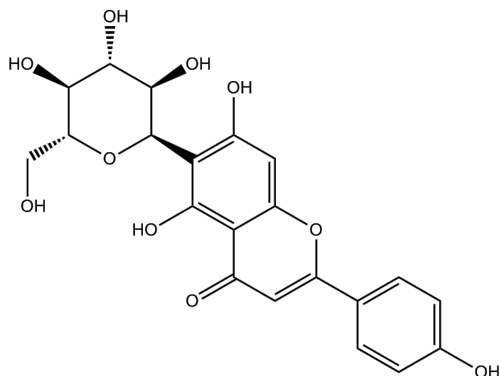
Formula $C_{21}H_{20}O_{10}$ M.Wt 432.38

Solubility DMF: 30 mg/ml, DMSO: 30 mg/ml, DMSO: PBS (pH 7.2) (1:5): 0.16 mg/ml
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]:

Cell lines RAW 264.7

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

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RAW 264.7 cells were plated in 96-well plates (1×10^4 cells/well) and incubated with various concentrations of Isoviteixin (final concentration: 0-200 μ g/ml) and Preparation Method LPS (2 μ g/ml) for 24h. In addition, the cells were pretreated with Isoviteixin (25 or 50 μ g/ml) for 1h, followed by the addition of H₂O₂ (300 μ M). After 24h, cell viability was determined by MTT assay.

Reaction Conditions 0-200 μ g/ml; 24h.

Applications 100 μ g/ml Isoviteixin were not toxic to RAW 264.7 cells, but treatment with 200 μ g/ml Isoviteixin caused significant cytotoxicity. The addition of H₂O₂ markedly reduced cell viability and induced apoptosis, which were attenuated by Isoviteixin exposure at 25 and 50 μ g/ml.

Animal experiment [1]:

Animal models 6-8 weeks old male BALB/c mice

Preparation Method Mice were randomly divided into six groups: control (saline), Isoviteixin only (100mg/kg, dissolved in 0.5% DMSO), LPS only (0.5mg/kg, dissolved in saline), LPS (0.5mg/kg) + Isoviteixin (50 or 100mg/kg), and LPS (0.5mg/kg) + dexamethasone (Dex, 5mg/kg dissolved in saline). Isoviteixin (50 or 100mg/kg) or Dex (5mg/kg) were administered intraperitoneally. After exposure to Isoviteixin or Dex for 1h, the mice were anesthetized with diethyl ether, and LPS was administered intranasally (i.n.) to induce lung injury. After LPS administration for 12h, the animals were euthanized.

Dosage form 50 or 100mg/kg; i.p.; once.

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Applications Isovitexin pretreatment decreased TNF- α and IL-6 production, ROS generation, and MPO and MDA content, while increased SOD and GSH levels and inhibited the protein expression of iNOS and COX-2 in LPS-induced ALI mice.

References:

[1]. Lv, Hongming, et al. "Isovitexin exerts anti-inflammatory and anti-oxidant activities on lipopolysaccharide-induced acute lung injury by inhibiting MAPK and NF- κ B and activating HO-1/Nrf2 pathways." *International journal of biological sciences* 12.1 (2016): 72.

Background

Isovitexin extracted from rice hulls of *Oryza sativa*, possesses various biological activities, including anti-inflammatory and antioxidant activities^[1].

In vitro, Isovitexin (5-20 μ M; 24h) protected HaCaT cells from H₂O₂-induced oxidative damage, alleviated H₂O₂-induced apoptosis^[2]. Pretreatment HaCaT cells with 10-50 μ M Isovitexin for 30min completely abolished PM2.5-induced elevation of ROS levels^[3].

In vivo, Isovitexin (50 or 100mg/kg; i.p.; once) pretreatment decreased TNF- α and IL-6 production, ROS generation, and MPO and MDA content, while increased SOD and GSH levels and inhibited the protein expression of iNOS and COX-2 in LPS-induced acute lung injury (ALI) mice^[4]. Isovitexin (5mg/kg; oral) restored bone mass and architecture of trabecular bones (femur metaphysis and fifth lumbar vertebra/L5) and cortical bones (femur diaphysis) in ovariectomized (OVX) osteopenic mice. Isovitexin has an oral bioavailability of 14.58%^[5].

References:

[1] Kang, Jie, et al. "Flavonoids from acai (*Euterpe oleracea* Mart.) pulp and their antioxidant and anti-inflammatory activities." *Food chemistry* 128.1 (2011): 152-157.

[2] Lv, Xuechun, et al. "The anti-apoptosis effect of isovitexin on human keratinocytes by regulating miR-98-5p/Bcl-2/Bcl-xL and MAPKs/NF- κ B signaling pathways." *Food Chemistry Advances* 2 (2023): 100238.

[3] Chowjarean, Verisa, et al. "Isovitexin increases stem cell properties and protects against PM2. 5 in keratinocytes." *in vivo* 33.6 (2019): 1833-1841.

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- [4] Lv, Hongming, et al. "Isovitexin exerts anti-inflammatory and anti-oxidant activities on lipopolysaccharide-induced acute lung injury by inhibiting MAPK and NF- κ B and activating HO-1/Nrf2 pathways." *International journal of biological sciences* 12.1 (2016): 72.
- [5] Pal, Subhashis, et al. "Oral Administration of Isovitexin, a Naturally Occurring Apigenin Derivative Showed Osteoanabolic Effect in Ovariectomized Mice: A Comparative Study with Teriparatide: S. Pal et al." *Calcified Tissue International* 111.2 (2022): 196-210.

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