

Product Data Sheet

Product Name: Isoshaftoside

Cat. No.: GN10438

Chemical Properties

Cas. No. 52012-29-0

Chemical Name 5,7-dihydroxy-2-(4-hydroxyphenyl)-8-[(2S,3R,4R,5S,6R)-3,4,5-trihydroxy-6-(hydroxymethyl)oxan-2-yl]-6-[(2S,3R,4S,5S)-3,4,5-trihydroxyoxan-2-yl]chromen-4-one

SMILES C1C(C(C(C(O1)C2=C(C3=C(C(=C2O)C4C(C(C(C(C(O4)CO)O)O)O)OC(=CC3=O)C5=CC=C(C=C5)O)O)O)O)O

Formula $C_{26}H_{28}O_{14}$

M.Wt 564.49

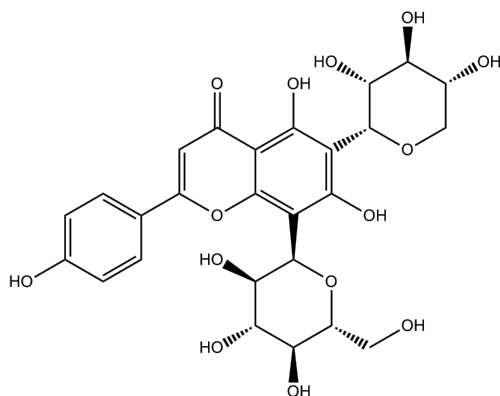
Solubility $\geq 56.4\text{mg/mL}$ in DMSO

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

Cell experiment [1]:

Cell lines Human dermal fibroblasts

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

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Senescent human dermal fibroblasts were treated with 4μM Isoshaftoside for 12 days. Then cells were stained with 10μg/mL DHR123 and ROS was measured by FACS.

Reaction Conditions 4μM; 12 days

Applications Isoshaftoside treatment significantly reduces reactive oxygen species (ROS) levels in senescent cells.

Animal experiment [2]:

Animal models Nonalcoholic fatty liver disease (NAFLD) model mice

NAFLD animal model was conducted using C57 mice fed with a high-fat diet. NAFLD model mice were treated with Isoshaftoside (20mg/kg/day) for 4 weeks. Preparation Method Blood samples were collected and serum levels of alanine transaminase (ALT), aspartate transaminase (AST), fasting blood glucose (GLU), total cholesterol (TC), and triglyceride (TG) were examined with blood index kits.

Dosage form 20mg/kg/day; 4 weeks; ip.

Applications Isoshaftoside reversed the damage to liver function and the elevation of blood glucose caused by a high-fat diet.

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References:

- [1]. Lee YH, So BH, Lee KS, et al. Identification of Cellular Isoschaftoside-Mediated Anti-Senescence Mechanism in RAC2 and LINC00294. *Molecules*. 2024 Sep 4;29(17):4182. doi: 10.3390/molecules29174182. PMID: 39275030; PMCID: PMC11397025.
- [2]. Su Y, Kang Y, Yi J, et al. Isoschaftoside Reverses Nonalcoholic Fatty Liver Disease via Activating Autophagy In Vivo and In Vitro. *Evid Based Complement Alternat Med*. 2022 Jun 27;2022:2122563. doi: 10.1155/2022/2122563. PMID: 35795282; PMCID: PMC9252632.

Background

Isoschaftoside is a C-glycosylflavonoid and can be isolated from plants like *Passiflora incarnata* L., *Viola yedoensis* Makino, and *Abrus cantoniensis*, and it can inhibit the growth of germinating *S. hermonthica* radicles^{[1][2][3]}. Isoschaftoside exert several pharmacological effects, such as anti inflammatory^[4] and antioxidant effects^[5].

Isoschaftoside (1μM; 12d) treatment can restore mitochondrial function and reduce glycolysis dependence in human dermal fibroblasts^[6]. In HepG2 cells, treatment with Isoschaftoside at 300μM for 24 hours reduced the expression levels of LC3-II and p62^[7].

Isoschaftoside (20mg/kg/day; 4 weeks; ip) treatment can reduce the body weight of high-fat diet mice and alleviate hepatic steatosis in nonalcoholic fatty liver disease(NAFLD)^[7]. Isoschaftoside (50μM; 12 weeks; oral) treatment significantly decreased lobular inflammation fibrosis induced by a high-fat diet^[8].

References:

- [1]. Toda K, Hito S, Takeda S, et al. Passionflower Extract Induces High-amplitude Rhythms without Phase Shifts in the Expression of Several Circadian Clock Genes in Vitro and in Vivo. *Int J Biomed Sci*. 2017 Jun;13(2):84-92. PMID: 28824345; PMCID: PMC5542920.
- [2]. Hu XL, Niu YJ, Chen M, et al. Preventive Effects of Total Flavonoid C-Glycosides from *Abrus mollis* on Nonalcoholic Fatty Liver Disease through Activating the PPARα Signaling Pathway. *Planta Med*. 2019 May;85(8):678-688. doi: 10.1055/a-0895-5838. Epub 2019 Apr 26. PMID: 31026873.
- [3]. Hooper AM, Tsanuo MK, Chamberlain K, et al. Isoschaftoside, a C-glycosylflavonoid from *Desmodium uncinatum* root exudate, is an allelochemical against the development of *Striga*.

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Phytochemistry. 2010 Jun;71(8-9):904-8. doi: 10.1016/j.phytochem.2010.02.015. Epub 2010 Mar 6. PMID: 20211477.

[4]. Guan S, Sun L, Wang X, et al. Isoschaftoside Inhibits Lipopolysaccharide-Induced Inflammation in Microglia through Regulation of HIF-1 α -Mediated Metabolic Reprogramming. Evid Based Complement Alternat Med. 2022 Nov 23;2022:5227335. doi: 10.1155/2022/5227335. PMID: 36467557; PMCID: PMC9711954.

[5]. Congyou DENG, Xinhe LEI, Minyou HE, et al. Identifying the active antioxidant ingredients in Arisaema Cum Bile aqueous extract on the basis of spectrum-effect relationships. Chinese Journal of Analytical Chemistry, Volume 52, Issue 12, 2024, 100453, ISSN 1872-2040. <https://doi.org/10.1016/j.cjac.2024.100453>.

[6]. Lee YH, So BH, Lee KS, et al. Identification of Cellular Isoschaftoside-Mediated Anti-Senescence Mechanism in RAC2 and LINC00294. Molecules. 2024 Sep 4;29(17):4182. doi: 10.3390/molecules29174182. PMID: 39275030; PMCID: PMC11397025.

[7]. Su Y, Kang Y, Yi J, et al. Isoschaftoside Reverses Nonalcoholic Fatty Liver Disease via Activating Autophagy In Vivo and In Vitro. Evid Based Complement Alternat Med. 2022 Jun 27;2022:2122563. doi: 10.1155/2022/2122563. PMID: 35795282; PMCID: PMC9252632.

[8]. Abe T. Isoschaftoside in Fig Leaf Tea Alleviates Nonalcoholic Fatty Liver Disease in Mice via the Regulation of Macrophage Polarity. Nutrients. 2025 Feb 21;17(5):757. doi: 10.3390/nu17050757. PMID: 40077628; PMCID: PMC11902273.

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