

Product Data Sheet

Product Name: 5,7-dihydroxychromone

Cat. No.: GN10629

Chemical Properties

Cas. No. 31721-94-5

Chemical Name 5,7-dihydroxychromen-4-one

SMILES C1=COC2=CC(=CC(=C2C1=O)O)O

Formula $C_9H_6O_4$

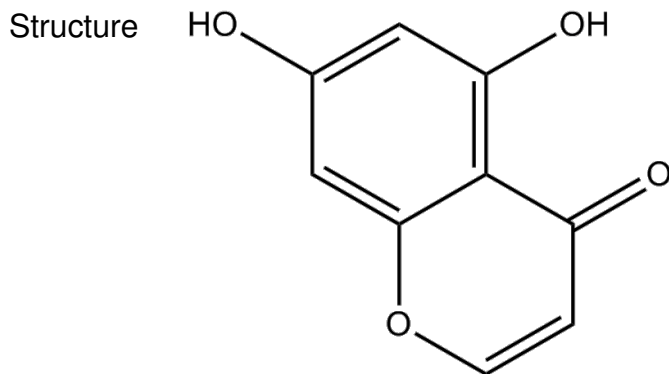
M.Wt 178.14

Solubility $\geq 7.05\text{mg/mL}$ in DMSO

Storage Store at -20°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.



Protocol

Cell experiment [1]:

Cell lines SH-SY5Y cells

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

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SH-SY5Y cells were cultured in Dulbecco Modified Eagle Medium (DMEM) supplemented with 1% penicillin/streptomycin and 10% heat-inactivated fetal bovine serum (FBS). The cells were cultured at 37°C, with 100% humidity, 95% air and 5% CO₂. SH-SY5Y cells were seeded at a density of 2×10^4 cells/200µl/well in 96-well plates and cultured for 24 hours. Subsequently, the cells were treated with different concentrations of the 5,7-dihydroxychromone (0.1, 1, 2, 10, 20, 50, and 100µM) and 6-OHDA (100µM) for 24 hours. Cell viability was detected using the MTT assay.

Preparation Method

Reaction Conditions
0.1, 1, 2, 10, 20, 50, and 100µM; 24h

Applications
5,7-dihydroxychromone treatment significantly inhibited the 6-OHDA-induced cell death in SH-SY5Y cells.

References:

[1] Kwon J, Hiep N T, Kim D W, et al. Chemical constituents isolated from the root bark of *Cudrania tricuspidata* and their potential neuroprotective effects[J]. *Journal of Natural Products*, 2016, 79(8): 1938-1951.

Background

5,7-dihydroxychromone, a flavonoid decomposition product from peanut shells, inhibits the radicle elongation of velvetleaf, corn, peanut, and wheat [1]. 5,7-dihydroxychromone can inhibit the growth of soil pathogenic fungi and suppress the germination of velvetleaf seeds [2]. 5,7-dihydroxychromone has been widely used as a model compound to develop new capillary electrophoresis techniques for the separation of related compounds [3].

In vitro, 5,7-dihydroxychromone treatment for 24h effectively inhibited 6-hydroxydopamine (6-OHDA)-induced cell death in SH-SY5Y cells, with an EC₅₀ value of 1.9µM [4]. Treatment with 10µg/ml 5,7-dihydroxychromone for 9 days can effectively induce the differentiation of mouse 3T3-L1

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preadipocytes^[5]. Treatment with 5,7-dihydroxychromone for 3 days can effectively inhibit the replication of HIV virus in H9 Lymphocytic Cells, with an EC₅₀ value of 18.65µg/ml^[6]. Treatment with 10µM 5,7-dihydroxychromone for 24 hours inhibited the expression of activated caspase-3 and caspase-9 in SH-SY5Y cells induced by 6-OHDA, as well as the cleavage of PARP, and enhanced the binding activity of Nrf2/ARE and upregulated the expression of Nrf2-dependent antioxidant genes (including HO-1, NQO1 and GCLc)^[7].

References:

- [1] Vaughn S F. Phytotoxic and antimicrobial activity of 5, 7-dihydroxychromone from peanut shells[J]. Journal of chemical ecology, 1995, 21(2): 107-115.
- [2] Spencer G F, Tjarks L W. Germination inhibition by 5, 7-dihydroxychromone, a flavanoid decomposition product[J]. Journal of Plant Growth Regulation, 1985, 4(1): 177-180.
- [3] Sheng S, Zhang L, Chen G. Determination of 5, 7-dihydroxychromone and luteolin in peanut hulls by capillary electrophoresis with a multiwall carbon nanotube/poly (ethylene terephthalate) composite electrode[J]. Food chemistry, 2014, 145: 555-561.
- [4] Kwon J, Hiep N T, Kim D W, et al. Chemical constituents isolated from the root bark of Cudrania tricuspidata and their potential neuroprotective effects[J]. Journal of Natural Products, 2016, 79(8): 1938-1951.
- [5] Koo H J, Kwak J H, Kang S C. Anti-diabetic properties of Daphniphyllum macropodum fruit and its active compound[J]. Bioscience, Biotechnology, and Biochemistry, 2014, 78(8): 1392-1401.
- [6] Wu P L, Lin F W, Wu T S, et al. Cytotoxic and anti-HIV principles from the rhizomes of Begonia nantoensis[J]. Chemical and pharmaceutical bulletin, 2004, 52(3): 345-349.
- [7] Kim D W, Lee K, Kwon J, et al. Neuroprotection against 6-OHDA-induced oxidative stress and apoptosis in SH-SY5Y cells by 5, 7-Dihydroxychromone: Activation of the Nrf2/ARE pathway[J]. Life sciences, 2015, 130: 25-30.

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