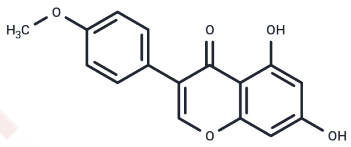
Data Sheet (Cat.No.T2859)

TargetMol

Biochanin A

Chemical Properties



CAS No. : 491-80-5

Formula: C16H12O5

Molecular Weight: 284.26

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Biochanin A (4-Methylgenistein) is an isoflavone derivative isolated from red clover Trifolium pratense with anticarcinogenic properties. Biochanin A is a naturally occurring fatty acid amide hydrolase (FAAH) inhibitor.
Targets(IC50)	EGFR,FAAH,Autophagy
In vivo	LD50: Mice 63 mg/kg (i.p.) [4]
Kinase Assay	For experiments with FAAH, rat liver homogenates, mouse brain homogenates and membranes from COS7 cells transfected with the human enzyme are used. Frozen (?80° C) livers from adult C57BL/6 mice and frozen brains (minus cerebella) from adult Wistar or Sprague-Dawley rats are thawed and homogenized in 20 mM HEPES, 1 mM MgCl2, pH 7. The homogenates are centrifuged at ~35000×g for 20 min at 4°C. After resuspension in buffer followed by recentrifugation and a second resuspension in buffer, the pellets are incubated at 37°C for 15 min. This incubation is undertaken in order to hydrolyse all endogenous FAAH substrates. The homogenates are then centrifuged as above, recentrifuged and resuspended in 50 mM Tris-HCl buffer, pH 7.4, containing 1 mM EDTA and 3 mM MgCl2. The homogenates are then frozen at ?80°C in aliquots until used for assay. FAAH is assayed in the homogenates and in the COS7 cell membranes using 0.5 μM (unless otherwise stated) [3H]AEA labelled in the ethanolamine part of the molecule. Blank values are obtained by the use of buffer rather than homogenate. In the experiments comparing effects of Biochanin A upon FAAH and FAAH-2, the same assay is used but with 16 nM [3H]oleoylethanolamide ([3H]OEA) as substrate and with an incubation phase at room temperature. The choice of OEA rather than AEA for FAAH-2 is motivated by the relative rates of hydrolysis: OEA is metabolized four times faster than AEA by FAAH-2, whereas for FAAH the rate of hydrolysis of OEA is about a third of that for AEA. When 0.5 μM [3H]AEA is used as substrate, assay conditions for rat brain and mouse liver are chosen so that <10% of added substrate is metabolized. For the human FAAH samples, <5% of the [3H]AEA is metabolized in all cases. For 16 nM [3H]OEA, a limited supply of an expensive ligand meant that optimization is not possible, and the amount of substrate utilized is higher (34±1 and 0.5±0.1% for FAAH and its corresponding mock-transfected, respectively; 40±2 and 21±0.4 for FAAH-2 and its corresponding mock-transfected respectively)[1].

Solubility Information

Solubility	DMSO: 60 mg/mL (211.07 mM),Sonication is recommended. Ethanol: 9 mg/mL (31.66 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.5179 mL	17.5895 mL	35.1791 mL
5 mM	0.7036 mL	3.5179 mL	7.0358 mL
10 mM	0.3518 mL	1.759 mL	3.5179 mL
50 mM	0.0704 mL	0.3518 mL	0.7036 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Akiyama T, et al. J Biol Chem, 1987, 262(12), 5592-5595.
Xiao Y, Gong Q, Wang W, et al. The combination of Biochanin A and SB590885 potentiates the inhibition of tumour progression in hepatocellular carcinoma. Cancer Cell International. 2020, 20(1): 1-11
Cheng M, Yan X, Wu Y, et al.Qingke Pingchuan granules alleviate airway inflammation in COPD exacerbation by inhibiting neutrophil extracellular traps in mice.Phytomedicine.2024: 156283.
Thors L, et al. Br J Pharmacol, 2010, 160(3), 549-560.
Peterson G, et al. Prostate, 1993, 22(4), 335-345.
Lee YS, et al. J Korean Med Sci, 1991, 6(4), 325-328.
Xiao Y, Gong Q, Wang W, et al. The combination of Biochanin A and SB590885 potentiates the inhibition of tumour progression in hepatocellular carcinoma[J]. Cancer cell international. 2020, 20(1): 1-11