

Product Data Sheet

Product Name: Chlorogenic acid

Cat. No.: GN10308

Chemical Properties

Cas. No. 327-97-9

Chemical Name (1S,3R,4R,5R)-3-[(E)-3-(3,4-dihydroxyphenyl)prop-2-enoyl]oxy-1,4,5-trihydroxycyclohexane-1-carboxylic acid

SMILES C1C(C(C(CC1(C(=O)O)O)OC(=O)C=CC2=CC(=C(C=C2)O)O)O)O

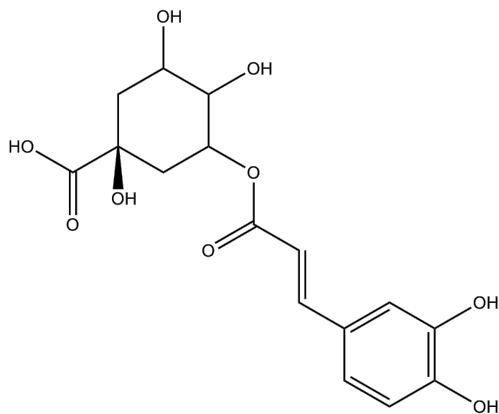
Formula $C_{16}H_{18}O_9$ M.Wt 354.31

Solubility $\geq 13.8\text{mg/mL}$ in DMSO Storage Store at -20°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 U87MG and M059J cells

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

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Preparation Method Chlorogenic acid (25 μ M, 50 μ M) were treated with U87MG and M059J cells for 24 hours.

Reaction Conditions Chlorogenic acid (25,50) μ M ;24h

Applications Chlorogenic acid dose-dependently decreased p-c-Myc expression and increased p21 expression in cell lines confirming the differentiation-inducing effect of Chlorogenic acid in solid tumors.

Animal experiment [1]:

Animal models Xenograft tumor model

Preparation Method The animals received an intraperitoneal (ip) injection of Chlorogenic acid (directly dissolved in saline; 25, or 50, or 200 mg/kg/d) for 30 days, and the same volume of saline was used as a control.

Dosage form Chlorogenic acid (25,50 and 200mg/kg, ip),30 days

Applications Chlorogenic acid treatment with ip administration of 25 mg/kg/d, 50 mg/kg/d, or 200 mg/kg/d slowed down the growth of the tumor mass, yielding 44.0%, 80.1% or 83.1% tumor volume inhibition of Huh7 tumors and 39.9%, 84.6%, or 86.3% tumor reduction of H446 tumors, respectively

References:

[1]. Huang S, Wang LL, Xue NN, Li C, Guo HH, Ren TK, Zhan Y, Li WB, Zhang J, Chen XG, Han YX, Zhang JL, Jiang JD. Chlorogenic acid effectively treats cancers through induction of cancer cell differentiation. Theranostics. 2019 Sep 19;9(23):6745-6763.

Background

Chlorogenic acid is a potent neuroprotective agent and also has antiviral, antifungal antioxidant and

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antitumor properties. CGA is also involved in regulating glucose and lipid metabolism and improving insulin sensitivity [1].

Chlorogenic acid (25, 50 μ M; 24h) dose-dependently reduced the expression of p-c-Myc and increased the expression of p21 in U87MG and M059J cells^[1]; Chlorogenic acid (30, 60 μ M, 24h) inhibited the proliferation of B16 melanoma cells; After co-incubation of B16 melanoma cells with 8-methoxypsoralen (8-MOP), chlorogenic acid (500 μ M, 24h) reduced melanin production in B16 melanoma cells and inhibited tyrosinase activity^[2].

Chlorogenic acid (75mg/kg, ip, bid) inhibited the tumor growth of rat C6 glioma, with a tumor volume inhibition rate of 57%^[1]. In the LPS-induced acute lung injury model, chlorogenic acid (50 mg/kg, ip) inhibited the LPS-induced increase in lung tissue MPO activity and the migration of neutrophils (PMN) to bronchoalveolar lavage fluid (BALF), and blocked the release of nitric oxide (NO) induced by LPS stimulation^[3]. Chlorogenic acid (100 mg/kg, ip, biw, 6 weeks) treatment inhibited HFD-induced liver steatosis and insulin resistance. Chlorogenic acid inhibited the expression of liver Ppar γ , Cd36, Fabp4 and Mgat1 genes, reduced inflammation in the liver and white adipose tissue, and was accompanied by a decrease in the mRNA levels of macrophage marker genes (including F4/80, Cd68, Cd11b, Cd11c, and Tnf α , Mcp-1 and Ccr2 encoding inflammatory proteins) ^[4].

References:

- [1]. Huang S, Wang LL, Xue NN, Li C, Guo HH, Ren TK, Zhan Y, Li WB, Zhang J, Chen XG, Han YX, Zhang JL, Jiang JD. Chlorogenic acid effectively treats cancers through induction of cancer cell differentiation. *Theranostics*. 2019 Sep 19;9(23):6745-6763.
- [2]. Li HR, Habasi M, Xie LZ, Aisa HA. Effect of chlorogenic acid on melanogenesis of B16 melanoma cells. *Molecules*. 2014 Aug 25;19(9):12940-8.
- [3]. Zhang X, Huang H, Yang T, Ye Y, Shan J, Yin Z, Luo L. Chlorogenic acid protects mice against lipopolysaccharide-induced acute lung injury. *Injury*. 2010 Jul;41(7):746-52.
- [4]. Ma Y, Gao M, Liu D. Chlorogenic acid improves high fat diet-induced hepatic steatosis and insulin resistance in mice. *Pharm Res*. 2015 Apr;32(4):1200-9.

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