

Product Data Sheet

Product Name: Acetate gossypol

Cat. No.: GN10341

Chemical Properties

Cas. No. 12542-36-8

Chemical Name acetic acid;7-(8-formyl-1,6,7-trihydroxy-3-methyl-5-propan-2-yl)naphthalen-2-yl)-2,3,8-trihydroxy-6-methyl-4-propan-2-yl)naphthalene-1-carbaldehyde

SMILES CC1=C(C(=C2C(=C1)C(=C(C(=C2C=O)O)O)C(C)C)O)C3=C(C(=C4C(=C3O)C(=C(C(=C4C(C)C)O)O)C=O)C.CC(=O)O

Formula $C_{32}H_{34}O_{10}$

M.Wt 578.61

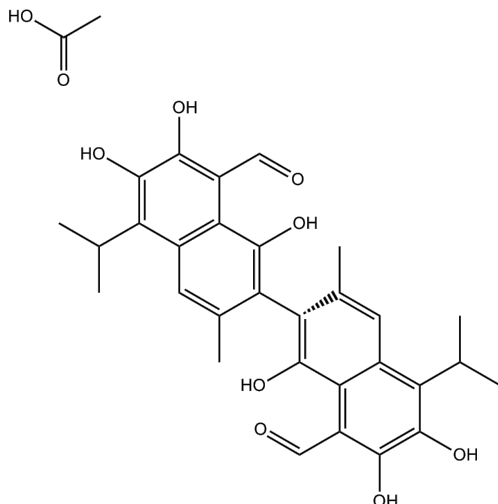
Solubility DMSO : 100mg/mL

Storage Store at 2-8°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]:

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Cell lines H1975 cells

H1975 cells were grown in RPMI-1640 medium with 10% (v/v) fetal bovine serum (FBS), antibiotic/antimycotic solution at 37°C in 5% CO₂/atmosphere.

Preparation Method Cells were seeded in 96-well plates at a density of 3×10^3 cells and cultured overnight. After 72h of treatment with different concentrations of Acetate gossypol (0, 10, 20, 30, 40, and 50μM), the cell viability was measured.

Reaction Conditions 0, 10, 20, 30, 40, and 50μM; 72h

Applications Acetate gossypol treatment significantly inhibited the cell viability of H1975 cells in a dose-dependent manner.

Animal experiment [2]:

Animal models Male BALB/c mice

Male BALB/c mice (6 weeks old; 18-22g) were housed singly in a standard environment with food and water ad libitum. Acetate gossypol (40mg/kg) was given by intraperitoneal injection (i.p.). Blank control and LPS group mice were given an equal volume of distilled water by i.p. 1h later, mice were slightly

Preparation Method anesthetized with an inhalation of diethyl ether, 10μg of LPS in 50μl PBS was instilled intranasally (i.n.) to induce lung injury. Blank control group mice were given a 50μl PBS by i.n. without LPS. All the mice were alive after 7h LPS treatment. The mice were killed by exsanguination at 7h after the administration of LPS. Collection of bronchoalveolar lavage fluid (BALF) for analysis.

Dosage form 40mg/kg for once; i.p.

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Applications Acetate gossypol treatment significantly reduced the production of inflammatory cytokine in the BALF of LPS-induced mice.

References:

- [1] Wang Y, Lai H, Fan X, et al. Acetate gossypol inhibits non-small cell lung cancer cells proliferation by targeting EGFR L858R/T790M[J]. *Frontiers in pharmacology*, 2018, 9: 728.
- [2] Liu Z, Yang Z, Fu Y, et al. Protective effect of Acetate gossypol on lipopolysaccharide-induced acute lung injury in mice[J]. *Inflammation research*, 2013, 62(5): 499-506.

Background

Acetate gossypol is a lipid-soluble polyphenolic compound extracted from the cotton plant with antifertility, antioxidant, and anticancer properties [1]. Acetate gossypol can block the release and utilization of ATP in sperm cells, reduce the contents of cytoskeleton and microtubule β -tubulin in spermatogenic cells and sperm cells, and inhibit the calcium influx in the cell membrane of sperm cells, as well as the activities of Mg-ATPase and Ca-Mg-ATPase [2]. Acetate gossypol has been widely used to inhibit the proliferation of various tumor cells and induce mitochondrial dysfunction in cancer cells [3].

In vitro, Acetate gossypol treatment for 12 hours significantly promoted the death of Jurkat cells overexpressing Bcl-2 and Jurkat cells overexpressing Bcl-XL, with IC₅₀ values of 18.1 μ M and 22.9 μ M, respectively [4]. Treatment with 80 μ M Acetate gossypol for 24 hours significantly induced cell necrosis in U266 cells and enhanced the production of reactive oxygen species and DNA damage [5]. Treatment with 20 μ M Acetate gossypol for 24 hours significantly induced apoptosis in H1975 cells and inhibited the phosphorylation of EGFR as well as the downstream signaling pathways [6].

In vivo, Acetate gossypol treatment via intraperitoneal injection at a dose of 10mg/kg/day for 4 weeks significantly inhibited tumor growth in the MDA-MB-468 xenograft mouse model and reduced VEGF-mediated angiogenesis [7]. A single intraperitoneal injection of 40mg/kg of Acetate gossypol for 8 hours significantly alleviated lung injury in mice induced by lipopolysaccharide (LPS) and inhibited the production of cytokines [8].

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References:

- [1] Keshmiri-Neghab H, Goliaei B. Therapeutic potential of Acetate gossypol: an overview[J]. Pharmaceutical Biology, 2014, 52(1): 124-128.
- [2] Gadelha I C N, Fonseca N B S, Oloris S C S, et al. Acetate gossypol toxicity from cottonseed products[J]. The Scientific World Journal, 2014, 2014(1): 231635.
- [3] Paunovic D, Rajkovic J, Novakovic R, et al. The potential roles of Acetate gossypol as anticancer agent: Advances and future directions[J]. Chinese Medicine, 2023, 18(1): 163.
- [4] Oliver C L, Miranda M B, Shangary S, et al. (–)-Acetate gossypol acts directly on the mitochondria to overcome Bcl-2-and Bcl-XL-mediated apoptosis resistance[J]. Molecular cancer therapeutics, 2005, 4(1): 23-31.
- [5] Xu R, Tian E, Tang H, et al. Proteomic analysis of Acetate gossypol induces necrosis in multiple myeloma cells[J]. BioMed Research International, 2014, 2014(1): 839232.
- [6] Wang Y, Lai H, Fan X, et al. Acetate gossypol inhibits non-small cell lung cancer cells proliferation by targeting EGFR L858R/T790M[J]. Frontiers in pharmacology, 2018, 9: 728.
- [7] Xiong J, Li J, Yang Q, et al. Acetate gossypol has anti-cancer effects by dual-targeting MDM2 and VEGF in human breast cancer[J]. Breast Cancer Research, 2017, 19(1): 27.
- [8] Liu Z, Yang Z, Fu Y, et al. Protective effect of Acetate gossypol on lipopolysaccharide-induced acute lung injury in mice[J]. Inflammation research, 2013, 62(5): 499-506.

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