

Product Data Sheet

Product Name: Aloesin
Cat. No.: GC38398

Chemical Properties

Cas. No. 30861-27-9

SMILES OC1=CC(C)=C(C(C=C(CC(C)=O)O2)=O)C2=C1[C@@H]3O[C@@H]([C@@H](O)[C@H](O)[C@H]3O)CO

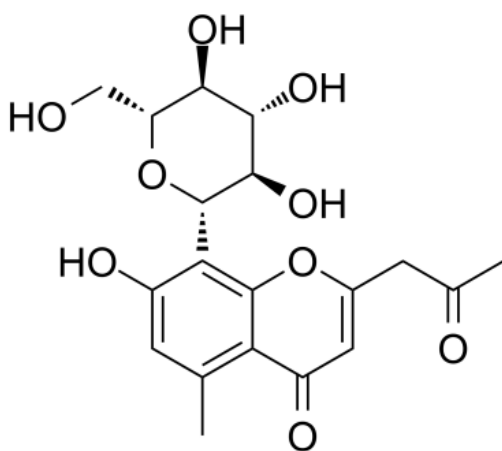
Formula $C_{19}H_{22}O_9$ M.Wt 394.37

Solubility DMSO: 270 mg/mL (684.64 mM) 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 SKOV3 cells

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

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Preparation Method SKOV3 cells were cultured in a medium supplemented with 10% fetal bovine serum (FBS) and 100U/ml penicillin/streptomycin. The cells were incubated in a humidified environment at 37°C with 5% CO₂. SKOV3 cells were seeded at a density of 5×10³ cells per well in a 96-well plate and cultured overnight. Then, the cells were treated with different concentrations (0, 2.5, 5, 10, 20, and 40μM) of Aloesin for 48 hours, and the cell viability after aloin treatment was analyzed.

Reaction Conditions 0, 2.5, 5, 10, 20, and 40μM; 48h

Applications Aloesin treatment inhibited the growth of SKOV3 cells in a dose-dependent manner.

Animal experiment [2]:

Animal models Wistar albino rats

Preparation Method Wistar albino rats (120±15g) were placed in standard laboratory cages lined with suitable wood chips and maintained in a controlled environment with a temperature of (20-22°C) and humidity of (40-60%). A 12-hour light/12-hour dark daily cycle was maintained throughout the entire study period. The rats had free access to food and water. After one week of adapting to the environment, 24 adult rats were randomly divided into 3 groups (n=8 in each group): (1) Control group (standard diet+solvent); (2) Control group+Aloesin (200mg/kg); (3) HFD+Aloesin (200mg/kg), with the Aloesin administered orally twice a week for 12 weeks. Liver tissues of the rats were collected for analysis.

Dosage form 200mg/kg; twice a week for 12 weeks; p.o.

Applications Aloesin reduced liver damage and mitigated the increase in liver enzymes in HFD-fed rats.

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References:

- [1] Zhang L, Lv R, Qu X, et al. Aloesin suppresses cell growth and metastasis in ovarian cancer SKOV3 cells through the inhibition of the MAPK signaling pathway[J]. Analytical Cellular Pathology, 2017, 2017(1): 8158254.
- [2] Alamri S M, Al-Harbi L N, Alshammari G M, et al. Aloesin activates Nrf2 signaling to attenuate obesity-associated oxidative stress and hepatic steatosis in high-fat diet-fed rats[J]. Scientific Reports, 2025, 15(1): 34888.

Background

Aloesin is a potent and selective inhibitor of tyrosinase with IC₅₀ value of 31.5μM [1]. Aloesin has direct inhibitory effects on melanogenesis and showed dose-dependent reductions in tyrosinase activity[2]. Aloesin has been widely used to inhibit excessive pigmentation caused by ultraviolet radiation[3].

In vitro, Aloesin treatment for 48 hours significantly inhibited the proliferation of SKOV3 cells, with an IC₅₀ value of 5μM[4]. Without the presence of Wnt3a ligand, treatment with 20μM Aloesin for 12 hours can increase the protein level of active β-catenin in NIH/3T3 cells, and promote the expression of Wnt cascade genes[5]. Treatment with 20μM Aloesin for 24 hours significantly increased the levels of cyclin E, CDK2 and CDC25A in SK-HEP-1 cells[6].

In vivo, Aloesin treatment via oral administration at a dose of 40mg/kg/day for 7 consecutive days effectively reduced psoriasis area severity index (PASI) scores without any significant changes in the body weight of mice and ameliorated psoriatic lesions [7]. Administer Aloesin (200mg/kg) orally twice a week for 12 weeks significantly reduced obesity-related oxidative stress and hepatic steatosis in rats fed with a high-fat diet (HFD)[8].

References:

- [1] Mikayoulou M, Mayr F, Temml V, et al. Anti-tyrosinase activity of South African Aloe species and isolated compounds plicataloside and aloesin[J]. Fitoterapia, 2021, 150: 104828.
- [2] Wang Z, Li X, Yang Z, et al. Effects of aloesin on melanogenesis in pigmented skin equivalents[J]. International journal of cosmetic science, 2008, 30(2): 121-130.

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- [3] Choi S, Park Y I, Lee S K, et al. Aloesin inhibits hyperpigmentation induced by UV radiation[J]. Clinical and experimental dermatology, 2002, 27(6): 513-515.
- [4] Zhang L, Lv R, Qu X, et al. Aloesin suppresses cell growth and metastasis in ovarian cancer SKOV3 cells through the inhibition of the MAPK signaling pathway[J]. Analytical Cellular Pathology, 2017, 2017(1): 8158254.
- [5] Peng C, Zhang W J, Dai C, et al. Study of the aqueous extract of Aloe vera and its two active components on the Wnt/ β -catenin and Notch signaling pathways in colorectal cancer cells[J]. Journal of ethnopharmacology, 2019, 243: 112092.
- [6] Lee K Y, Park J H, Chung M H, et al. Aloesin up-regulates cyclin E/CDK2 kinase activity via inducing the protein levels of cyclin E, CDK2, and CDC25A in SK-HEP-1 cells[J]. IUBMB Life, 1997, 41(2): 285-292.
- [7] Alsahli T G, Alharbi K S, Alenezi S K, et al. Aloesin alleviates imiquimod-induced psoriasis in dermal layers through inhibition of interleukins and NF- κ B signaling pathways[J]. Scientific Reports, 2025.
- [8] Alamri S M, Al-Harbi L N, Alshammari G M, et al. Aloesin activates Nrf2 signaling to attenuate obesity-associated oxidative stress and hepatic steatosis in high-fat diet-fed rats[J]. Scientific Reports, 2025, 15(1): 34888.

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