

Product Data Sheet

Product Name: Wogonin

Cat. No.: GN10017

Chemical Properties

Cas. No. 632-85-9

Chemical Name 5,7-dihydroxy-8-methoxy-2-phenylchromen-4-one

SMILES COC1=C(C=C(C2=C1OC(=CC2=O)C3=CC=CC=C3)O)O

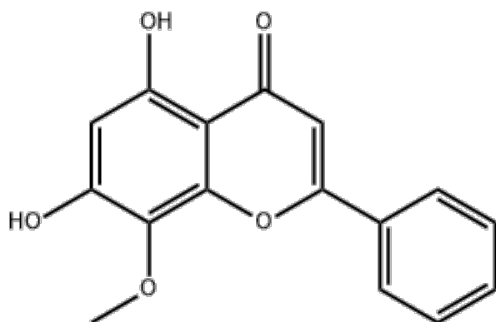
Formula $C_{16}H_{12}O_5$ M.Wt 284.26

Solubility $\geq 56.33\text{mg/mL}$ in DMSO 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 Panc-1 cells

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

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Preparation Method PANC-1 cells were grown in DMEM media supplemented with 10% fetal bovine serum in 5% CO₂ at 37°C. The exponentially growing PANC-1 cells were seeded into 96-well microplates for 24h. Afterwards, equal volume of medium containing various concentrations of Wogonin (1.25, 2.5, 5, 10, 20, 40, 80, and 160μM) were added to each well. At the end of the incubation period (72h at 37°C), cell viability was analyzed.

Reaction Conditions 1.25, 2.5, 5, 10, 20, 40, 80, and 160μM; 72h

Applications Wogonin treatment significantly reduced the cell viability of PANC-1 cells in a dose-dependent manner.

Animal experiment [2]:

Animal models Male C57BL/6J mice

Preparation Method Male C57BL/6J mice (8 weeks old) were maintained under 12-h light and 12-h dark cycle at a temperature of 24 C±1°C and humidity of 50%±10%, free with water and diet. Mouse pulmonary fibrosis was induced by a single intratracheal instillation of 1.5U/kg BLM. To test the therapeutic efficacy of Wogonin in BLM-induced established fibrosis, Wogonin was intraperitoneally administered at 50mg/kg every two days for 2 weeks starting at the day 8 after BLM treatment. Control mice received an equal volume of normal saline only. Collect the heart tissues of mice for analysis.

Dosage form 50mg/kg; every two days for 2 weeks; i.p.

Applications Wogonin treatment ameliorated BLM-induced myocardial fibrosis and cardiac dysfunction in mice.

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References:

- [1] Zhang T, Liu M, Liu Q, et al. Wogonin increases gemcitabine sensitivity in pancreatic cancer by inhibiting Akt pathway[J]. *Frontiers in Pharmacology*, 2022, 13: 1068855.
- [2] Wang L, Lin F, Miao R, et al. Cardiac protection of wogonin in mice with pulmonary fibrosis by regulating Sirt1/γ-H2AX pathway[J]. *Frontiers in Pharmacology*, 2025, 16: 1551141.

Background

Wogonin is a potent and competitive inhibitor of CYP1A2 with a K_i value of $0.24\mu\text{M}$ [1]. Wogonin activates the expression of PPAR γ and subsequently suppresses the nuclear factor- κB pathway [2]. Wogonin has been widely used for anti-angiogenesis and inhibition of the growth of various tumor cells[3].

In vitro, Wogonin treatment for 48h resulted in significant inhibition of S180 cells with an IC_{50} value of $0.737\mu\text{M}$ [4]. Treatment with $100\mu\text{M}$ Wogonin for 72 hours promoted apoptosis of Panc-1 cells by inhibiting the Akt pathway and enhanced the sensitivity of Panc-1 cells to gemcitabine[5]. Treatment with $100\mu\text{M}$ Wogonin for 8 days induced senescence in MDA-MB-231 cells, accompanied by increased expression of P16, β -galactosidase activity, and accumulation of reactive oxygen species (ROS) [6].

In vivo, Wogonin treatment via intraperitoneal injection at a dose of 50mg/kg every two days for 2 weeks significantly ameliorated bleomycin (BLM)-induced myocardial fibrosis and cardiac dysfunction in mice[7]. A single intraperitoneal injection of 40mg/kg dose of Wogonin reduced the brain contusion volume in traumatic brain injury (TBI) mice within one day, decreased neuronal death, blood-brain barrier permeability and brain edema[8].

References:

- [1] Li T, Li N, Guo Q, et al. Inhibitory effects of wogonin on catalytic activity of cytochrome P450 enzyme in human liver microsomes[J]. *European journal of drug metabolism and pharmacokinetics*, 2011, 36(4): 249-256.
- [2] Yamada Y, Saito H, Araki M, et al. Wogonin, a Compound in *Scutellaria baicalensis*, Activates ATF4–FGF21 Signaling in Mouse Hepatocyte AML12 Cells[J]. *Nutrients*, 2022, 14(19): 3920.
- [3] Tuli H S, Rath P, Chauhan A, et al. Wogonin, as a potent anticancer compound: From chemistry to

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cellular interactions[J]. Experimental biology and medicine, 2023, 248(9): 820-828.

[4] Wang W, Guo Q L, You Q D, et al. The anticancer activities of wogonin in murine sarcoma S180 both in vitro and in vivo[J]. Biological and Pharmaceutical Bulletin, 2006, 29(6): 1132-1137.

[5] Zhang T, Liu M, Liu Q, et al. Wogonin increases gemcitabine sensitivity in pancreatic cancer by inhibiting Akt pathway[J]. Frontiers in Pharmacology, 2022, 13: 1068855.

[6] Yang D, Guo Q, Liang Y, et al. Wogonin induces cellular senescence in breast cancer via suppressing TXNRD2 expression[J]. Archives of Toxicology, 2020, 94(10): 3433-3447.

[7] Wang L, Lin F, Miao R, et al. Cardiac protection of wogonin in mice with pulmonary fibrosis by regulating Sirt1/γ-H2AX pathway[J]. Frontiers in Pharmacology, 2025, 16: 1551141.

[8] Chen C C, Hung T H, Wang Y H, et al. Wogonin improves histological and functional outcomes, and reduces activation of TLR4/NF-κB signaling after experimental traumatic brain injury[J]. PloS one, 2012, 7(1): e30294.

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