Auranofin

Cat. No.: HY-B1123

CAS No.: 34031-32-8

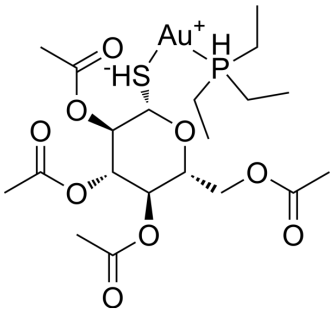
Molecular Formula: $C_{20}H_{36}AuO_9PS$

Molecular Weight: 680.5

Target: Bacterial; SARS-CoV

Pathway: Anti-infection

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (73.48 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.4695 mL	7.3475 mL	14.6951 mL
	5 mM	0.2939 mL	1.4695 mL	2.9390 mL
	10 mM	0.1470 mL	0.7348 mL	1.4695 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (3.67 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.08 mg/mL (3.06 mM); Suspended solution; Need ultrasonic and warming
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (3.06 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Auranofin (SKF-39162) is a thioredoxin reductase (TrxR) inhibitor with an IC_{50} of 0.2 μM. Auranofin exhibits antiviral activity against SARS-CoV21, with a CC_{50} of 4.2 μM for monkey kidney Vero E6 cells.

IC_{50} & Target

IC50: 0.2 μM (TrxR)[1]

In Vitro

Auranofin is a drug that is approved for the treatment of rheumatoid arthritis but is being investigated for potential therapeutic application in a number of other diseases including cancer, neurodegenerative disorders. Auranofin induces apoptosis in cells through a Bax/Bak-dependent mechanism associated with selective disruption of mitochondrial redox homeostasis in conjunction with oxidation of Prx3[1].

	Auranofin inhibits proliferation and survival of SKOV3 cells in a dose- and time-dependent manner. Auranofin treatment activates the pro-apoptotic caspase-3, increases protein levels of apoptosis-inducing proteins Bax and Bim and reduces the expression of the anti-apoptotic mediator Bcl-2 in SKOV3 cells[2]. Auranofin is a lipophilic gold compound with anti-inflammatory and immunosuppressive properties. Auranofin inhibits the cell growth and induction of mitochondrial apoptosis in PC3 human prostate cancer cells. Treatment with auranofin significantly inhibits cell viability with an IC_{50} value of 2.5 μM after 24 h[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Prophylactic treatment of adjuvant-induced arthritis rats with auranofin results in a slight reduction in paw edema, a complete normalization of the depressed IL-2 production, and a reduction of the elevated IL-1 production, but has no effect on the depressed IL-3 production[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	Auranofin is dissolved in DMSO. Cells are treated with auranofin (0, 50, 100, 200 and 400 nM) for 72 h for the dose-dependent response assay and 100 nM of auranofin is added into the wells for 0, 24, 72 and 120 h for the time-dependent response assay. Control cultures are treated with DMSO. Cell viability is measured by the MTT assay[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [4]	Rats: Prophylactically, auranofin (6.7 to 15 mg of gold/kg), indomethacin (2 mg/kg) or tragacanth vehicle control were administered orally at daily intervals beginning on the day of adjuvant injection. On days 16 to 17 peritoneal exudate cells or spleen cells from normal or adjuvant-injected rats were isolated and tested[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Microbiol. 2020 Nov;5(11):1439-1448.
- Nat Aging. 2024 Jan 24.
- Nat Commun. 2020 Oct 16;11(1):5263.
- Adv Sci (Weinh). 2023 Dec 20:e2304939.
- Nucleic Acids Res. 2021 Jan 8;49(D1):D1113-D1121.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Cox AG, et al. The thioredoxin reductase inhibitor auranofin triggers apoptosis through a Bax/Bak-dependent process that involves peroxiredoxin 3 oxidation. Biochem Pharmacol. 2008 Oct 30;76(9):1097-109.

[2]. Park SH, et al. Auranofin displays anticancer activity against ovarian cancer cells through FOXO3 activation independent of p53. Int J Oncol. 2014 Oct;45(4):1691-8.

[3]. Park N, et al. Auranofin promotes mitochondrial apoptosis by inducing annexin A5 expression and translocation in human prostate cancer cells. J Toxicol Environ Health A. 2014;77(22-24):1467-76.

[4]. Lee JC, et al. Effect of auranofin treatment on aberrant splenic interleukin production in adjuvant arthritic rats. J Immunol. 1987 Nov 15;139(10):3268-74.

[5]. Shuofeng Yuan, et al. Metallodrug ranitidine bismuth citrate suppresses SARS-CoV-2 replication and relieves virus-associated pneumonia in Syrian hamsters. Nat

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA