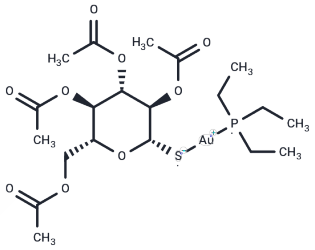
Data Sheet (Cat.No.T1303)

TargetMol

Auranofin

Chemical Properties



CAS No. : 34031-32-8

Formula: C20H34AuO9PS

Molecular Weight: 678.49

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Auranofin (SKF-39162) is an antirheumatic agent, is used to treat rheumatoid arthritis, improves arthritis symptoms including painful or tender and swollen joints and morning stiffness.
Targets(IC50)	Antibacterial,SARS-CoV
In vitro	Auranofin, an established rheumatoid arthritis treatment, also shows promise across a spectrum of other conditions such as cancer and neurodegenerative diseases. It triggers apoptosis via a Bax/Bak-dependent pathway by selectively disrupting mitochondrial redox balance and oxidizing Prx3[1]. Furthermore, auranofin hampers SKOV3 cell proliferation and survival in a dose- and time-specific manner, instigating caspase-3 activation, elevating pro-apoptotic Bax and Bim proteins, and diminishing the anti-apoptotic Bcl-2 in SKOV3 cells[2]. This lipophilic gold-based agent, known for its anti-inflammatory and immunosuppressive characteristics, notably impedes cell growth and induces mitochondrial apoptosis in PC3 human prostate cancer cells, with a noteworthy reduction in cell viability at an IC50 of 2.5 μM after 24 hours[3].
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, without effect on the depressed IL-3 production[4].
Cell Research	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].

Solubility Information

Solubility	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2.25 mg/mL (3.32 mM),Solution. DMSO: 22.5 mg/mL (33.16 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.4739 mL	7.3693 mL	14.7386 mL
5 mM	0.2948 mL	1.4739 mL	2.9477 mL
10 mM	0.1474 mL	0.7369 mL	1.4739 mL
50 mM	0.0295 mL	0.1474 mL	0.2948 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Cui XY, et al. Anti-Cancer Effects of Auranofin in Human Lung Cancer Cells by Increasing Intracellular ROS Levels and Depleting GSH Levels. Molecules. 2022 Aug 15;27(16):5207.
Zheng X, Yang Z, Gu Q, et al. The protease activity of human ATG4B is regulated by reversible oxidative modification. Autophagy. 2019
Cui XY, et al. Auranofin inhibits the proliferation of lung cancer cells via necrosis and caspase-dependent apoptosis. Oncol Rep. 2020 Dec;44(6):2715-2724.
Xia Y, Chen J, Yu Y, et al. Compensatory combination of mTOR and TrxR inhibitors to cause oxidative stress and regression of tumors. Theranostics. 2021, 11(9): 4335.
Lu H, Lu W, Zhu Y, et al. Auranofin Has Advantages over First-Line Drugs in the Treatment of Severe Streptococcus suis Infections. Antibiotics. 2021, 10(1): 26.
Cox AR, et al. The rheumatoid arthritis drug auranofin lowers leptin levels and exerts antidiabetic effects in obese mice. Cell Metab. 2022 Dec 6;34(12):1932-1946.e7.
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.
Zhang Y, Zhou J, Ye Q, et al. 6-Dithio-2'-deoxyguanosine analogs induce reactive oxygen species-mediated tumor cell apoptosis via bi-targeting thioredoxin 1 and telomerase. Toxicology and Applied Pharmacology. 2020: 115079
Zheng P, Xia Y, Shen X, et al.Combination of TrxR1 inhibitor and lenvatinib triggers ROS-dependent cell death in human lung cancer cells.International Journal of Biological Sciences.2024, 20(1): 249-264.
Zhang Y, Zhou J, Ye Q, et al. 6-Dithio-2'-deoxyguanosine analogs induce reactive oxygen species-mediated tumor cell apoptosis via bi-targeting thioredoxin 1 and telomerase[J]. Toxicology and Applied Pharmacology. 2020: 115079.
Lu H, Lu W, Zhu Y, et al. Auranofin Has Advantages over First-Line Drugs in the Treatment of Severe Streptococcus suis Infections[J]. Antibiotics. 2021, 10(1): 26.
Shen X, Xia Y, Lu H, et al.Synergistic targeting of TrxR1 and ATM/AKT pathway in human colon cancer cells. Biomedicine & Pharmacotherapy.2024, 174: 116507.
Xia Y, Chen J, Yu Y, et al. Compensatory combination of mTOR and TrxR inhibitors to cause oxidative stress and regression of tumors[J]. Theranostics. 2021, 11(9): 4335.
Ren X, Xue R, Luo Y, et al.Programmable melanoma-targeted radio-immunotherapy via fusogenic liposomes functionalized with multivariate-gated aptamer assemblies.Nature Communications.2024, 15(1): 5035.
Zheng X, Yang Z, Gu Q, et al. The protease activity of human ATG4B is regulated by reversible oxidative modification[J]. Autophagy. 2019 (just-accepted).