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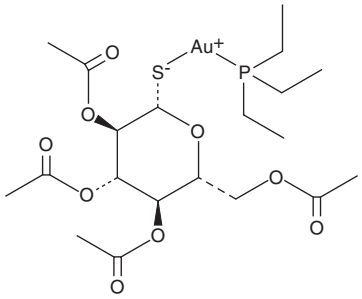
PRODUCT INFORMATION

Auranofin

Item No. 15316

CAS Registry No.:	34031-32-8
Formal Name:	[1-(thio-κS)-β-D-glucopyranose 2,3,4,6-tetraacetato] (triethylphosphine)-gold
Synonyms:	NSC 321521, Ridauragold thiol, SKF 39162
MF:	$C_{20}H_{34}AuO_9PS$
FW:	678.5
Purity:	≥95%
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Auranofin is supplied as a crystalline solid. A stock solution may be made by dissolving the auranofin in the solvent of choice. Auranofin is soluble in organic solvents such as ethanol and DMSO, which should be purged with an inert gas. The solubility of auranofin in these solvents is approximately 4 and 5 mg/ml, respectively.

Auranofin is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Description

Auranofin is a gold-thiol complex with diverse biological activities.[1-3] It inhibits thioredoxin reductase (IC_{50} = 0.2 µM), increases oxidation of mitochondrial peroxiredoxin 3 (PRDX3), and induces apoptosis in Jurkat T cells.[1] Auranofin reduces the production of IL-6 and activation of JAK1 and JAK2, as well as inhibits nuclear translocation of NF-kB, in primary human synoviocytes.[2] It is active against *P. falciparum* and *S. mansoni in vitro* when used at concentrations ranging from 1 to 10 µM. *In vivo*, auranofin (2 mg/kg per day) reduces the number of peripheral blood mononuclear cells (PBMCs) containing viral DNA and delays viral rebound in macaques infected with the mac251 strain of simian immunodeficiency virus (SIV).[3] Auranofin (0.5 µM) synergizes with buthionine sulfoxime (BSO) to decrease glutathione peroxidase 4 (GPX4) levels, increase intracellular accumulation of reactive oxygen species (ROS), and induce ferroptosis in Huh7 and HepG2 hepatocellular carcinoma cells.[4]

References

1. Cox, A.G., Brown, K.K., Arner, E.S.J., *et al.* The thioredoxin reductase inhibitor auranofin triggers apoptosis through a Bax/Bak-dependent process that involves peroxiredoxin 3 oxidation. *Biochem. Pharmacol.* **76(9)**, 1097-1099 (2008).
2. Madeira, J.M., Gibson, D.L., Kean, W.F., *et al.* The biological activity of auranofin: Implications for novel treatment of diseases. *Inflammopharmacology* **20(6)**, 297-306 (2012).
3. Lewis, M.G., DaFonseca, S., Chomont, N., *et al.* Gold drug auranofin restricts the viral reservoir in the monkey AIDS model and induces containment of viral load following ART suspension. *AIDS* **25(11)**, 1347-1356 (2011).
4. Lippmann, J., Petri, K., Fulda, S., *et al.* Redox modulation and induction of ferroptosis as a new therapeutic strategy in hepatocellular carcinoma. *Transl. Oncol.* **13(8)**, 100785 (2020).

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