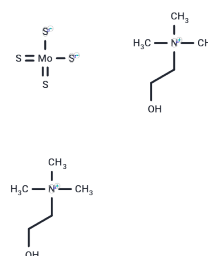


ATN-224

Chemical Properties

CAS No. : 649749-10-0
Formula: C₁₀H₂₈MoN₂O₂S₄
Molecular Weight: 432.56
Appearance: no data available
Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year



Biological Description

Description	ATN-224 (Bis(choline)tetrathiomolybdate) inhibits SOD1 activity in endothelial cells, an effect that is dose dependent with an IC ₅₀ of 17.5±3.7 nM. ATN-224 is an oral Cu ²⁺ /Zn ²⁺ -superoxide dismutase 1 (SOD1) inhibitor.
Targets(IC ₅₀)	Others
In vitro	ATN-224 is an orally-available inorganic small molecule that inhibits the copper/zinc-dependent enzyme, superoxide dismutase 1 (Cu/Zn-SOD1), in endothelial and tumor cells[2] and it is able to inhibit SOD1 activity in endothelial cells, an effect that is dose dependent with an IC ₅₀ of 17.5±3.7 nM. ATN-224 inhibits FGF-2-induced ERK1/2 phosphorylation in a dose-dependent and time-dependent manner with an IC ₅₀ between 1.25 and 2.5 μM, consistent with the IC ₅₀ for the inhibition of proliferation[1], and it inhibits the proliferation of both HUVEC (IC ₅₀ =1.4±0.3 μM; n=5) and it is also able to inhibit the activity of purified bovine SOD1 with an IC ₅₀ of 0.33±0.03 μM after 24 hours of incubation. ATN-224 has a specific and high affinity for copper ions (108 mol/L ⁻¹) and shows no binding to calcium, iron, magnesium, zinc, or manganese ions at concentrations up to 1 mM as determined by isothermal titration calorimetry. The SOD1 inhibition by ATN-224 is time dependent, reaching maximal inhibition at ~16 hours. ATN-224 seems to inhibit SOD1 by depleting the enzyme of copper.
In vivo	Oral administration of ATN-224 leads to the inhibition of angiogenesis before any measurable reduction in copper levels in either plasma or the Matrigel plug is observed. Moreover, ATN-224 significantly (P<0.05) suppresses angiogenesis in the Matrigel plug model in mice, regardless of whether it is directly added to the plug or administered orally. These findings indicate that ATN-224's anti-angiogenic effects are not dependent on the depletion of copper[1].

Solubility Information

Solubility	DMSO: 50 mg/mL (115.59 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.3118 mL	11.5591 mL	23.1182 mL
5 mM	0.4624 mL	2.3118 mL	4.6236 mL
10 mM	0.2312 mL	1.1559 mL	2.3118 mL
50 mM	0.0462 mL	0.2312 mL	0.4624 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

Lai Y, Yang N, Shi D, et al.Puerarin enhances TFEB-mediated autophagy and attenuates ROS-induced pyroptosis after ischemic injury of random-pattern skin flaps.European Journal of Pharmacology.2024: 176621.