

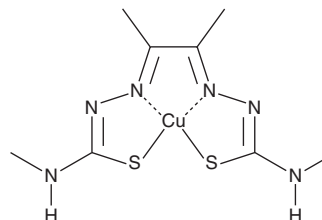
PRODUCT INFORMATION



Cu-ATSM

Item No. 17122

CAS Registry No.: 68341-09-3
Formal Name: (SP-4-2)-[[2,2'-(1,2-dimethyl-1,2-ethanediyliidene) bis[N-ethylhydrazinecarbothioamidato-κN2,κS]] (2-)-copper
Synonyms: copper-ATSM, Cu^{II}(atsm)
MF: C₈H₁₄CuN₆S₂
FW: 321.9
Purity: ≥95%
UV/Vis.: λ_{max}: 310, 477 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Cu-ATSM is supplied as a crystalline solid. A stock solution may be made by dissolving the Cu-ATSM in the solvent of choice. Cu-ATSM is soluble in organic solvents such as DMSO and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of Cu-ATSM in DMSO is approximately 10 mg/ml and approximately 2 mg/ml in DMF.

Cu-ATSM is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, Cu-ATSM should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Cu-ATSM has a solubility of approximately 0.1 mg/ml in a 1:9 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Cu-ATSM is a copper-containing compound with diverse biological activities.¹⁻³ It inhibits ferroptotic cell death induced by RSL3, erastin (Item No. 17754), or iron(II) (EC₅₀s = 134, 169, and 171 nM, respectively), as well as RSL3-, erastin-, or iron-induced lipid peroxidation in N27 rat mesencephalic cells when used at a concentration of 1 μM.¹ Cu-ATSM (30 mg/kg per day) increases mutant superoxide dismutase (SOD1^{G37R}) protein levels, metalation, and activity in the spinal cord in the SOD1^{G37R} transgenic mouse model of amyotrophic lateral sclerosis (ALS).² It also increases the number of α-motor neurons and reduces oxidatively modified proteins in the spinal cord, as well as increases the latency to fall in the rotarod test in the same ALS mouse model. Cu-ATSM containing positron-emitting copper isotopes has been used in PET imaging applications for selective labeling of hypoxic tissue.³

References

1. Southon, A., Szostak, K., Acevedo, K.M., *et al.* Cu II (atsm) inhibits ferroptosis: Implications for treatment of neurodegenerative disease. *Br. J. Pharmacol.* **177**(3), 656-667 (2020).
2. Roberts, B.R., Lim, N.K.H., McAllum, E.J., *et al.* Oral treatment with CuII(atsm) increases mutant SOD1 in vivo but protects motor neurons and improves the phenotype of a transgenic mouse model of amyotrophic lateral sclerosis. *J. Neurosci.* **34**(23), 8021-8031 (2014).
3. Vavere, A.L. and Lewis, J.S. Cu-ATSM: A radiopharmaceutical for the PET imaging of hypoxia. *Dalton Trans.* **43**, 4893-4902 (2007).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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