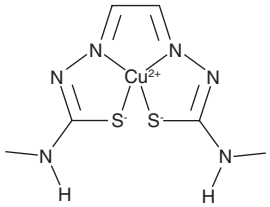
PRODUCT INFORMATION

Cu-GTSM

Item No. 35455

CAS Registry No.: 68341-14-0
Formal Name: (SP-4-2)-[[2,2′-(1,2-ethanediylidene)*bis*[N-methylhydrazinecarbothioamidato-κN^2,κS]](2-)]-copper
Synonyms: Cu^{II}(gtsm), copper-GTSM
MF: $C_6H_{10}CuN_6S2$
FW: 293.9
Purity: ≥95%
UV/Vis.: λ_{max}: 316, 495 nm
Supplied as: A 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-GTSM is supplied as a solid. A stock solution may be made by dissolving the Cu-GTSM in the solvent of choice, which should be purged with an inert gas. Cu-GTSM is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of Cu-GTSM in these solvents is approximately 10 and 20 mg/ml, respectively. It is also slightly soluble in ethanol.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of Cu-GTSM can be prepared by directly dissolving the solid in aqueous buffers. The solubility of Cu-GTSM in PBS (pH 7.2) is approximately 0.16 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Cu-GTSM is a copper-containing compound and an analog of Cu-ATSM (Item No. 17122) that has diverse biological activities.[1-4] It is active against methicillin-sensitive and -resistant *S. aureus* clinical isolates (IC_{50}s = 0.3-0.6 µM for all).[1] Cu-GTSM inhibits the growth of SK-N-MC neuroepithelioma cells and MRC-5 fibroblasts (IC_{50}s = 0.009 and 0.27 µM, respectively).[2] It induces the production of reactive oxygen species (ROS) in SK-N-MC cells when used at a concentration of 5 µM. Cu-GTSM (2.5 mg/kg) reduces tumor burden in the transgenic adenocarcinoma of mouse prostate (TRAMP) model but induces weight loss and renal toxicity in the same model.[3] Cu-GTSM-containing positron-emitting copper isotopes have been used in PET imaging applications for copper trafficking in the TASTPM transgenic mouse model of Alzheimer's disease.[4]

References

1. Haeili, M., Moore, C., Davis, C.J.C., *et al.* Copper complexation screen reveals compounds with potent antibiotic properties against methicillin-resistant *Staphylococcus aureus*. *Antimicrob Agents Chemother.* **58(7)**, 3727-3736 (2014).
2. Stefani, C., Al-Eisawi, Z., Jansson, P.J., *et al.* Identification of differential anti-neoplastic activity of copper bis(thiosemicarbazones) that is mediated by intracellular reactive oxygen species generation and lysosomal membrane permeabilization. *J. Inorg. Biochem.* **152**, 20-37 (2015).
3. Cater, M.A., Pearson, H.B., Wolyniec, K., *et al.* Increasing intracellular bioavailable copper selectively targets prostate cancer cells. *ACS Chem. Biol.* **8(7)**, 1621-1631 (2013).
4. Torres, J.B., Andreozzi, E.M., Dunn, J.T., *et al.* PET imaging of copper trafficking in a mouse model of Alzheimer disease. *J. Nucl. Med.* **57(1)**, 109-114 (2016).

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