

Product Data Sheet

Product Name: Copper Fluor-4

Cat. No.: GC73290

Chemical Properties

Cas. No. 2365532-64-3

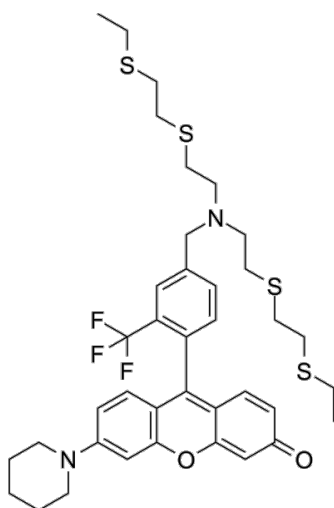
Formula $C_{38}H_{47}F_3N_2O_2S_4$ M.Wt 749.05

Solubility DMSO : 125 mg/mL (166.88 mM; Need ultrasonic) Storage Store at -20°C, protect from light

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Background

Copper Fluor-4 (CF4) is a Cu⁺-specific fluorescent probe based on a rhodol dye scaffold. Copper Fluor-4 has high copper selectivity with a K_d value of 2.9×10⁻¹³ M, particularly over zinc and iron, as well as abundant cellular alkali and alkaline earth metals. Copper Fluor-4 is stable in a physiologically relevant pH regime between 6 and 8 (wavelengths of 415 nm for excitation and 660 nm for emission).

Copper Fluor-4 (0.8 μM, 10 min) demonstrates localization of the copper in the soma region, which

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includes its localization in the perinuclear Golgi region in the PC-12-derived neurons[3].

Copper Fluor-4 (2 μ M, 24 h) can be used to assess changes in labile copper distributions in small living organisms such as zebrafish embryos[1]. Copper Fluor-4 (10 μ M, 3 h) can be used to assess labile Cu levels with a K_d value of 2.9×10^{-13} M for a 1:1 copper:probe stoichiometry that is well-matched to monitor labile Cu pools by reversible Cu binding without depleting the total Cu store in worms[2].

References:

- [1]. Xiao T, et al. Copper regulates rest-activity cycles through the locus coeruleus-norepinephrine system. *Nat Chem Biol.* 2018 Jul;14(7):655-663.
- [2]. Weishaupt AK, et al. Dysfunction in atox-1 and ceruloplasmin alters labile Cu levels and consequently Cu homeostasis in *C. elegans*. *Front Mol Biosci.* 2024 Feb 8;11:1354627.
- [3]. Chakraborty K, et al. Copper dependent ERK1/2 phosphorylation is essential for the viability of neurons and not glia. *Metallomics.* 2022 Apr 1;14(4):mfac005.

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