G-418 disulfate

Cat. No.: HY-17561

CAS No.: 108321-42-2

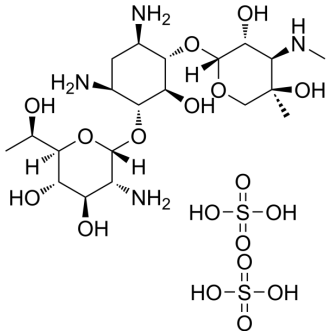
Molecular Formula: $C_{20}H_{44}N_4O_{18}S_2$

Molecular Weight: 692.71

Target: Bacterial; Antibiotic

Pathway: Anti-infection

Storage: 4°C, stored under nitrogen, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 125 mg/mL (180.45 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.4436 mL	7.2180 mL	14.4361 mL
	5 mM	0.2887 mL	1.4436 mL	2.8872 mL
	10 mM	0.1444 mL	0.7218 mL	1.4436 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
Solubility: 50 mg/mL (72.18 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

G-418 disulfate (Geneticin sulfate), is an aminoglycoside antibiotic, inhibits protein synthesis in eukaryotes and prokaryotes. G-418 disulfate is commonly used as a selective agent for eukaryotic cells[1].

IC_{50} & Target

Aminoglycoside

In Vitro

G418 sulfate, an aminoglycoside neomycin analogue, interferes with protein synthesis and has been used extensively for selection of mammalian cell lines that possess neomycin resistance (NR). The neomycin resistance (neo) gene is frequently used in eukaryotic vectors as a dominant selectable gene. G418 can be covalently bound to asialoorosomucoid (AsOR) to form a conjugate for hepatocyte-specific targeting and toxicity[2].

The human GD3 synthase cDNA was transfected into MDA-MB231 cells, and G-418 bulk selection was used to select cells stably overexpressing the GD3 synthase[2]. An aminoglycoside antibiotic, G418, has been shown to be an inhibitor of many pro- and eukaryotes at concentrations from 1-300 microgram/ml[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [3]

To characterize the sensitivity of the trypanosome populations to G418 in vivo, bloodstream forms of T. brucei brucei GUTat 3.1 and T. brucei brucei GUTat 3.1/BBR3 are expanded separately in sublethally irradiated mice. Prior to the first peak of parasitemia, trypanosomes are collected, and aliquots containing 106 trypanosomes are inoculated intraperitoneally into mice. Twenty-four hours following infection, the mice are divided into groups and treated with G418 at a dose of 10, 20, 30, 40, 50, or 80 mg/kg of body weight (bw) by inoculating intraperitoneally 0.2 mL of the drug in sterile water. At 24 and 48 h following the firsttreatment, G418 is administered to animals in each group at the same dose as before, resulting in three treatments per mouse. Repeated drug treatments are necessary to ensure complete elimination of nontransfected GUTat 3.1 parasites from the mice. Mice are then monitored daily, for 33 days, for the presence of parasites by microscopic examination of wet-blood films. Animals found to be parasitemic are recorded and then removed from the experiment.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nature. 2023 Jun;618(7966):862-870.
- Cancer Commun (Lond). 2022 Nov 9.
- Mol Cell. 2023 Nov 20:S1097-2765(23)00914-0.
- Emerg Microbes Infect. 2023 Sep 19;2261556.
- Theranostics. 2022 Jan 1;12(3):1187-1203.

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REFERENCES

[1]. Giordano-Santini R, et al. An antibiotic selection marker for nematode transgenesis. Nat Methods. 2010;7(9):721-723.

[2]. Volarevic M, et al. A novel G418 conjugate results in targeted selection of genetically protected hepatocytes without bystander toxicity. Bioconjug Chem. 2007;18(6):1965-1971.

[3]. Kwon KM, et al. Disialyl GD2 ganglioside suppresses ICAM-1-mediated invasiveness in human breast cancer MDA-MB231 cells. Int J Biol Sci. 2017;13(3):265-275. Published 2017 Feb 12.

[4]. Davies J, et al. A new selective agent for eukaryotic cloning vectors. Am J Trop Med Hyg. 1980;29(5 Suppl):1089-1092.

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