

Product Data Sheet

Product Name: Bleomycin B2 sulfate

Cat. No.: GC78997

Chemical Properties

Cas. No. 51773-86-5

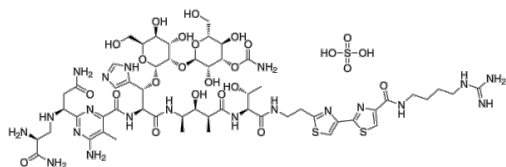
Formula $C_{55}H_{86}N_{20}O_{25}S_3$ M.Wt 1523.59

Solubility DMSO: ≥ 100 mg/mL (65.63 mM) Storage Store at 4°C, sealed storage, away from moisture

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

Bleomycin B2 (Phleomycin D2) sulfate is a selective antitumor and antibacterial agent that induces DNA strand breaks and inhibits DNA ligase activity. The optimal pH for the activity of Bleomycin B2 sulfate is 9.1, and its efficacy is enhanced by thiol compounds or hydrogen peroxide. Bleomycin B2 sulfate undergoes enzymatic inactivation via bleomycin-inactivating enzymes, exhibits selective retention in squamous cell carcinoma, and is inactivated most rapidly in liver and kidney homogenates. Bleomycin B2 sulfate can be applied in research related to squamous cell carcinoma and other relevant studies [1] [2].

Caution: Product has not been fully validated for medical applications. For research use only.

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In Vivo, Bleomycin B2 sulfate (200 mg; administered for 1 h) undergoes enzymatic inactivation by mouse liver bleomycin-inactivating enzyme, which releases 1 mol of ammonia via cleavage of the carboxamide group to form an inactivated product with slightly reduced alkalinity, and this product retains the original amino acid and carbamoyl fragments^[1].

In Vitro, Bleomycin B2 sulfate (1000 µg/mL; 30 min) undergoes the fastest inactivation in mouse liver and kidney homogenates, with only 6.8% and 5.0% of activity remaining, respectively; whereas its inactivation is the slowest in mouse lung and skin homogenates, with 40.2% and 34.2% of activity remaining, respectively^[1]. Bleomycin B2 sulfate (100 µg/mL; 60 min) is potently inactivated by partially purified mouse liver bleomycin-inactivating enzyme at 37°C; complete inactivation is achieved after 60 min when the enzyme concentration is ≥ 1 mg protein^[1]. The inactivation activity of Bleomycin B2 sulfate by the enzyme protein extracted from mouse sarcoma tissues induced by 20-methylcholanthrene is significantly higher than that by the enzyme protein extracted from mouse squamous cell carcinoma tissues induced by 20-methylcholanthrene (mean 32.71 units/g vs mean 14.45 units/g)^[1]. Bleomycin B2 sulfate (0.1-40 µg/mL; 2-60 min) induces single-strand breaks in supercoiled SV40 DNA in a cell-free system, and its activity is increased 20-fold in the presence of 1 mM 2-mercaptoethanol^[2].

References:

- [1]. UMEZAWA H, et al. Studies on the mechanism of antitumor effect of bleomycin on squamous cell carcinoma[J]. The Journal of Antibiotics, 1972, 25(7): 409-420.
- [2]. UMEZAWA H, et al. The effect of bleomycin on SV40 DNA: Characteristics of bleomycin action which produces a single scission in a superhelical form of SV40 DNA[J]. The Journal of Antibiotics, 1973, 26(9): 521-527.

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