

Bleomycin hydrochloride

Chemical Properties

CAS No. :	67763-87-5
Formula:	C ₅₅ H ₈₄ ClN ₁₇ O ₂₁ S ₃
Molecular Weight:	
Storage:	Store at low temperature, Keep away from direct sunlight Powder: -20°C for 3 years In solvent: -80°C for 1 year <small>Actual storage temperature shall be subject to the COA.</small>

Biological Description

Description	Bleomycin hydrochloride is a glycopeptide antibiotic and a DNA synthesis inhibitor. Bleomycin Sulfate can cause DNA strand breaks but not RNA strand breaks. Bleomycin Sulfate has anti-tumor activity.
Targets(IC50)	DNA/RNA Synthesis
In vitro	<p>METHODS: Human pancreatic cells (PCCs) AsPC-1 and MIA PaCa-2 were treated with Bleomycin Sulfate (0.1-100 µM) for 24-72 hours, and the cell growth inhibition was detected by the MTT method.</p> <p>RESULTS: AsPC-1 cells showed no response to Bleomycin Sulfate. Bleomycin Sulfate significantly inhibited the cell growth of MIA-PaCa-2, and the IC₅₀ at 24/48/72 h was 5.9 /6.4/2.6 µM, respectively. [1]</p> <p>METHODS : Mesenchymal stem cells (MSCs) were treated with Bleomycin Sulfate (1800 ng/mL) for 24-96 hours, and sub-G1 and caspase-3 were detected by Flow Cytometry.</p> <p>RESULTS: Bleomycin Sulfate induces upregulation of sub-G1 and caspase-3 activation, indicating that Bleomycin Sulfate induces apoptosis. [2]</p> <p>METHODS : Normal rat alveolar macrophages were incubated with Bleomycin Sulfate (0.01-1 µg/mL) for 18 hours, and their levels were determined using the MDGF Assay.</p> <p>RESULTS: Bleomycin Sulfate stimulates macrophages to produce fibroblast growth factor (MDGF). [3]</p>
In vivo	<p>METHODS: To detect the anti-tumor activity in vivo, Bleomycin Sulfate (20 mg/kg) was intraperitoneally injected into BALB/c mice carrying mouse colorectal cancer tumor CT26 shControl or shCRT, once every two days for five times.</p> <p>RESULTS: Bleomycin Sulfate delayed the growth of CT26 cells transfected with control shRNA, but had no effect on CT26 cells transfected with CRT shRNA. [4]</p> <p>METHODS: To study the time course of Bleomycin induced pulmonary fibrosis in mice, Bleomycin Sulfate (0.06 mg/ mouse in 0.9% saline) was administered as a single intratracheal instillation (IT) to C57Bl/6J mice.</p> <p>RESULTS: Bleomycin Sulfate induced pulmonary fibrosis in mice. The most appropriate time point for evaluating pulmonary fibrosis in this model is 14 days after IT infusion of Bleomycin Sulfate. This is based on the observation that extensive fibrosis occurred in animals at 14 days, but the variability of the fibrotic response was smaller and the mortality rate was lower than 21 days. [5]</p>

Solubility Information

Solubility	DMSO: 255 mg/mL, Sonication and heating to 60°C are recommended. H2O: 80 mg/mL, Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL, Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

Reference

- Sakharkar MK, et al. Key drug-targeting genes in pancreatic ductal adenocarcinoma. *Genes Cancer*. 2021 Mar 11; 12:12-24.
- Yeung M, et al. Mitochondrial DNA damage by bleomycin induces AML cell death. *Apoptosis*. 2015 Jun;20(6):811-20.
- Denholm EM, et al. The effects of bleomycin on alveolar macrophage growth factor secretion. *Am J Pathol*. 1989 Feb;134(2):355-63.
- Bugaut H, et al. Bleomycin exerts ambivalent antitumor immune effect by triggering both immunogenic cell death and proliferation of regulatory T cells. *PLoS One*. 2013 Jun 7;8(6):e65181.
- Izbicki G, et al. Time course of bleomycin-induced lung fibrosis. *Int J Exp Pathol*. 2002 Jun;83(3):111-9.

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