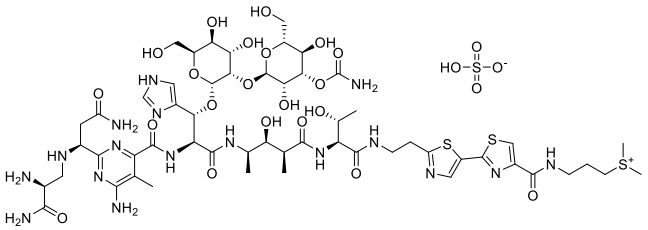
Product data sheet

MedKoo Cat#: 100090 Name: Bleomycin sulfate CAS#: 9041-93-4 (sulfate) Chemical Formula: $C_{55}H_{85}N_{17}O_{25}S_4$ Molecular Weight: 1512.62	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Bleomycin sulfate is a mixture of the sulfate salts of basic glycopeptide antineoplastic antibiotics isolated from Streptomyces verticillus. Bleomycin sulfate forms complexes with iron that reduce molecular oxygen to superoxide and hydroxyl radicals which cause single- and double-stranded breaks in DNA; these reactive oxygen species also induce lipid peroxidation, carbohydrate oxidation, and alterations in prostaglandin synthesis and degradation.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	43.22	28.57
DMF	1.5	0.99
PBS (pH 7.2)	10.0	6.61
Water	177.5	117.35

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	0.66 mL	3.31 mL	6.61 mL
5 mM	0.13 mL	0.66 mL	1.32 mL
10 mM	0.07 mL	0.33 mL	0.66 mL
50 mM	0.01 mL	0.07 mL	0.13 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Jin H, Luo C. Bleomycin inhibits proliferation and promotes apoptosis of brain glioma cells via TGF-β/Smad signaling pathway. J BUON. 2020 Mar-Apr;25(2):1076-1083. PMID: 32521909.

In vivo study

1. Headley L, Bi W, Wilson C, Collum SD, Chavez M, Darwiche T, Mertens TCJ, Hernandez AM, Siddiqui SR, Rosenbaum S, Johnston RA, Karmouty-Quintana H. Low-dose administration of bleomycin leads to early alterations in lung mechanics. Exp Physiol. 2018 Dec;103(12):1692-1703. doi: 10.1113/EP087322. Epub 2018 Oct 17. PMID: 30260066.

7. Bioactivity

Biological target:

Bleomycin sulfate is a DNA synthesis inhibitor.

In vitro activity

Product data sheet

It was revealed that the number of EdU-positive cells in BLM (Bleomycin) groups was notably smaller than that in the NC group, displaying less cell proliferation, suggesting that BLM inhibits the growth of glioma cells. In addition, the levels of inflammatory factors TNF-α and INF-γ were determined, so as to detect the incidence of glioma in the early stage. It was found that the NC group had remarkably higher levels than the other two groups, while the 10 mU/ mL BLM group had obviously declined levels, suggesting that 10 mU/mL BLM can inhibit the production of inflammatory factors, further repressing the occurrence of brain glioma. These findings imply that the increased TNF-α level can further stimulate the development of brain glioma, thus aggravating the inflammatory responses. However, the level declined after the treatment with BLM, indicating that the symptoms are improved after treatment with BLM, and that BLM has favorable therapeutic effects on brain glioma.

Reference: J BUON. 2020 Mar-Apr;25(2):1076-1083. https://www.jbuon.com/archive/25-2-1076.pdf

In vivo activity

The early changes in C (day 7) and P–V loop data (CST and area, day 7) were accompanied by histological evidence of fibrotic deposition and gene expression that were apparent as early as days 7 and 14, respectively. These results are significant because they demonstrate that low-dose systemic exposure to i.p. BLM (Bleomycin) is able to induce physiological and morphological changes as early as day 7 in C57BL/6 mice and indicate that lung function is a robust and physiologically relevant tool to guide future efforts in drug discovery for IPF.

Reference: Exp Physiol. 2018 Dec;103(12):1692-1703. https://physoc.onlinelibrary.wiley.com/doi/full/10.1113/EP087322