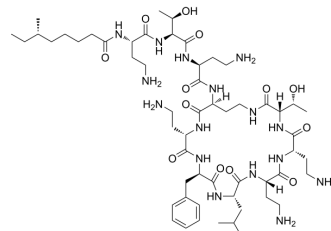


## Polymyxin B1

<b>Cat. No.:</b>	HY-A0248A
<b>CAS No.:</b>	4135-11-9
<b>Molecular Formula:</b>	C <sub>56</sub> H <sub>98</sub> N <sub>16</sub> O <sub>13</sub>
<b>Molecular Weight:</b>	1203.48
<b>Target:</b>	Bacterial
<b>Pathway:</b>	Anti-infection
<b>Storage:</b>	Sealed storage, away from moisture and light, under nitrogen
	Powder    -80°C    2 years
	-20°C    1 year
	* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light, under nitrogen)



### SOLVENT & SOLUBILITY

#### In Vitro

1 M HCL : 10 mg/mL (8.31 mM; Need ultrasonic and warming)

Concentration	Mass		
	1 mg	5 mg	10 mg
1 mM	0.8309 mL	4.1546 mL	8.3092 mL
5 mM	0.1662 mL	0.8309 mL	1.6618 mL
10 mM	---	---	---

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

### BIOLOGICAL ACTIVITY

#### Description

Polymyxin B1 is a potent antimicrobial lipopeptide first derived from *Bacillus polymyxa*. Polymyxin B1 is the major component in Polymyxin B (HY-A0248). Polymyxin B1 can induce lysis of bacterial cells through interaction with their membranes. Polymyxin B1 has the potential for multidrug-resistant Gram-negative bacterial infections treatment<sup>[1][2]</sup>.

#### In Vitro

Polymyxin B1 has antimicrobial activity that againsts *Pseudomonas aeruginosa* ATCC 27853, *Acinetobacter baumannii* ATCC BAA 747, *Klebsiella pneumoniae* ATCC 13883, *P. aeruginosa* 9019, *A. baumannii* 1261 and *K. pneumoniae* VM9 isolates with MIC values of 4 µg/mL, 2 µg/mL, 2 µg/mL, 4 µg/mL, 4 µg/mL and 2 µg/mL, respectively<sup>[3]</sup>. Polymyxin B1 strongly inhibits protein synthesis in yeast, and in *E. coli* and *S. aureus*<sup>[4]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### In Vivo

The pharmacokinetics of Polymyxin B1 is investigated in a rat model following intravenous administration (0.8 mg/kg). The area under the concentration-time curve for Polymyxins B1 is greater than those of colistins A and B. Colistin A colistin B. The clearance value of Polymyxins B1 is 2.39 mL/min/kg, the plasma protein binding is 82.3%, the elimination half-life is 79.5 min and the AUC<sub>0-∞</sub> is 365 mg•min/L<sup>[5]</sup>.

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## CUSTOMER VALIDATION

- ACS Appl Bio Mater. 2023 Jun 8.

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## REFERENCES

- [1]. Kwa AL, et al. Pharmacokinetics of polymyxin B1 in patients with multidrug-resistant Gram-negative bacterial infections. *Diagn Microbiol Infect Dis.* 2008 Feb;60(2):163-7.
  - [2]. Berglund NA, et al. Interaction of the antimicrobial peptide polymyxin B1 with both membranes of *E. coli*: a molecular dynamics study. *PLoS Comput Biol.* 2015 Apr 17;11(4):e1004180.
  - [3]. Tam VH, et al. In vitro potency of various polymyxin B components. *Antimicrob Agents Chemother.* 2011 Sep;55(9):4490-1.
  - [4]. Alonso MA, et al. Compounds affecting membranes that inhibit protein synthesis in yeast. *Antimicrob Agents Chemother.* 1979 Dec;16(6):750-6.
  - [5]. Sivanesan S, et al. Pharmacokinetics of the Individual Major Components of Polymyxin B and Colistin in Rats. *J Nat Prod.* 2017 Jan 27;80(1):225-229.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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