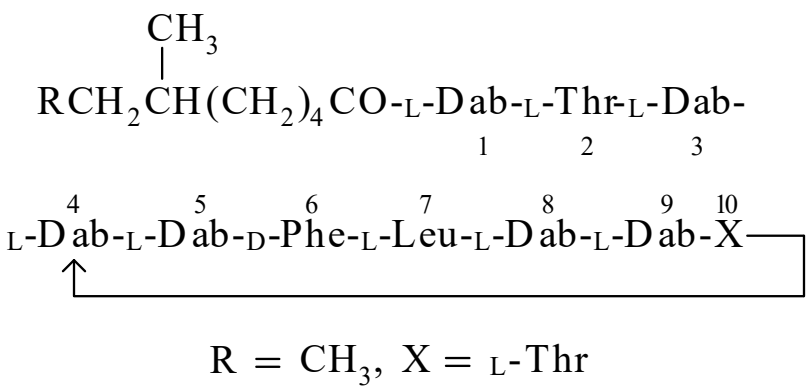
>>**Entry Name: Polymyxin $B_1$**




**CAS Registry Number:** 4135-11-9

**Molecular Formula:** $C_{56}H_{98}N_{16}O_{13}$
**Molecular Weight:** 1203.49
**Accurate Mass:** 1202.749929
**Percentage Composition:** C 55.89%; H 8.21%; N 18.62%; O 17.28%

**Biological Source:** Isol. from *Bacillus polymyxa*
**Biological Use/Importance:** Antibacterial agent
**Solubility:** BERDY SOL: Sol. acids; fairly sol. MeOH; poorly sol. $H_2O$, butanol, hexane
**UV:** [neutral] $\lambda_{max}$ 252 (); 259 (); 264 () ($H_2O$) (Berdy)
**Hazard & Toxicity:** BERDY HAZD : $LD_{50}$ (mus, ivn) 6 - 9 mg/kg , $LD_{50}$ (mus, ipr) 19 mg/kg , $LD_{50}$ (mus, scu) 80 mg/kg

>>**Derivative:** Hydrochloride (1:5)

**CAS Registry Number:** 6883-64-3
**Optical Rotation:** $[\alpha]_D^{25}$ –85.1 (c, 2.33 in EtOH aq.)

>>**Derivative:** Phosphate (1:5)

**CAS Registry Number:** 65814-04-2
**Optical Rotation:** $[\alpha]_D^{25}$ –72 (c, 0.35 in $H_2O$)
**Other Data:** Dec. at ca. 185-188°

>>**Derivative:** Mixt. with Polymyxin $B_2$
**Synonym(s): Polymyxin B,** INN. Aerosporin. Bacillosporin. Mastimyxin. Polmix. Mikitaicin B

**CAS Registry Number:** 1404-26-8

**Biological Use/Importance:** Protein kinase C antagonist and calmodulin inhibitor. Antiendotoxin props., active against gram-negative bacteria. Immunostimulant. Enhances catabolism of LDL *in vitro*
**Optical Rotation:** $[\alpha]_{Hg}$ –106.3 (1*M* HCl)
**Other Data:** Polymyxin B conjugated to dextran 70 (PMX 622) has reduced toxicity. Used in the adjunctive therapy of gram-negative sepsis
**Hazard & Toxicity:** Main adverse effects from parenteral administration are dose-related neurotoxicity and nephrotoxicity. Ototoxic *via* topical use

>>**Derivative:** Sulfomethylated deriv., mixt. with Polymyxins $B_2$ and $B_3$
**Synonym(s): Sulfomyxin,** INN. Dynamyxin

**CAS Registry Number:** 1405-52-3

**Biological Use/Importance:** Antibiotic used in the treatment of *E. coli* infections
**Other Data:** Used as penta-Na salt Sulphomyxin sodium, BAN

>>**Derivative:** Mixt. with Polymyxin $B_2$; sulfate
**Synonym(s): Polymyxin B sulfate,** JAN, USAN

**CAS Registry Number:** 1405-20-5

**Fluka:** 81334
**Sigma:** P4932

**References:**

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