[Template:Drugbox](/wiki/Template:Drugbox" \o "Template:Drugbox)

**Colistin**, also known as **polymyxin E**, is an [antibiotic](/wiki/Antibiotic) produced by certain strains of the bacteria [*Paenibacillus polymyxa*](/wiki/Paenibacillus_polymyxa). Colistin is a mixture of the [cyclic polypeptides](/wiki/Cyclic_polypeptide) colistin A and B and belongs to the class of [polypeptide antibiotics](/wiki/Polypeptide_antibiotic) known as [polymyxins](/wiki/Polymyxin). Colistin is effective against most [Gram-negative](/wiki/Gram-negative) bacilli.

Colistin is a decades-old drug that fell out of favor due to its [nephrotoxicity](/wiki/Nephrotoxicity). It remains one of the [last-resort antibiotics](/wiki/Drug_of_last_resort) for multidrug-resistant [*Pseudomonas aeruginosa*](/wiki/Pseudomonas_aeruginosa), [*Klebsiella pneumoniae*](/wiki/Klebsiella_pneumoniae), and [*Acinetobacter*](/wiki/Acinetobacter).[[1]](#cite_note-1) [NDM-1](/wiki/NDM-1) metallo-β-lactamase multidrug-resistant [Enterobacteriaceae](/wiki/Enterobacteriaceae) have also shown susceptibility to colistin.<ref name=Kumarasamy>[Template:Cite journal](/wiki/Template:Cite_journal)</ref>

Resistance to colistin is rare. The first colistin-resistance gene that is carried in a [plasmid](/wiki/Plasmid) and can be transferred between bacterial strains was described in 2016.[[2]](#cite_note-2) This plasmid-borne [mcr-1](/wiki/MCR-1) gene has since been isolated in China,[[2]](#cite_note-2) Europe[[3]](#cite_note-3) and the United States.[[4]](#cite_note-4)

## Contents

* 1 History[[edit](/index.php?title=(none)&action=edit&section=1)]
* 2 Administration and dosage[[edit](/index.php?title=(none)&action=edit&section=2)]
  + 2.1 Forms[[edit](/index.php?title=(none)&action=edit&section=3)]
  + 2.2 Dosage[[edit](/index.php?title=(none)&action=edit&section=4)]

## History[[edit](/index.php?title=(none)&action=edit&section=1)]

Colistin was first isolated in Japan in 1949 from a flask of fermenting *Bacillus* *polymyxa* var. *colistinus* and became available for clinical use in 1959[[5]](#cite_note-5)[Template:Expand section](/wiki/Template:Expand_section)

## Administration and dosage[[edit](/index.php?title=(none)&action=edit&section=2)]

### Forms[[edit](/index.php?title=(none)&action=edit&section=3)]

Two forms of colistin are available commercially: **colistin sulfate** and **colistimethate sodium** (colistin methanesulfonate sodium, colistin sulfomethate sodium). Colistin sulfate is [cationic](/wiki/Cationic); colistimethate sodium is [anionic](/wiki/Anionic). Colistin sulfate is stable, but colistimethate sodium is readily hydrolysed to a variety of methanesulfonated derivatives. Colistin sulfate and colistimethate sodium are eliminated from the body by different routes. With respect to *Pseudomonas aeruginosa*, colistimethate is the inactive prodrug of colistin. The two drugs are not interchangeable .

* Colistimethate sodium may be used to treat *Pseudomonas aeruginosa* infections in [cystic fibrosis](/wiki/Cystic_fibrosis) patients, and it has come into recent use for treating multidrug-resistant [*Acinetobacter*](/wiki/Acinetobacter) infection, although resistant forms have been reported.[[6]](#cite_note-6)<ref name=Towner>[Template:Cite book](/wiki/Template:Cite_book)</ref> Colistimethate sodium has also been given intrathecally and intraventricularly in *Acinetobacter baumanii* and *Pseudomonas aeruginosa* meningitis/[ventriculitis](/wiki/Ventriculitis)[[7]](#cite_note-7)[[8]](#cite_note-8)[[9]](#cite_note-9)[[10]](#cite_note-10) Some studies have indicated that colistin may be useful for treating infections caused by carbapenem-resistant isolates of [*Acinetobacter baumannii*](/wiki/Acinetobacter_baumannii).[[11]](#cite_note-11)\* Colistin sulfate may be used to treat intestinal infections, or to suppress [colonic](/wiki/Colon_(anatomy)) flora. Colistin sulfate is also used as topical creams, powders, and otic solutions.
* Colistin A (polymyxin E1) and colistin B (polymyxin E2) can be purified individually to research and study their effects and potencies as separate compounds.

### Dosage[[edit](/index.php?title=(none)&action=edit&section=4)]

Colistin sulfate and colistimethate sodium may both be given intravenously, but the dosing is complicated. The very different labeling of the parenteral products of colistin methanesulfonate in different parts of the world was first revealed by Li et al.[[12]](#cite_note-12) Colistimethate sodium manufactured by [Xellia](/wiki/Xellia) (**Colomycin injection**) is prescribed in international units, but colistimethate sodium manufactured by [Parkdale Pharmaceuticals](/wiki/Parkdale_Pharmaceuticals) (**Coly-Mycin M Parenteral**) is prescribed in milligrams of colistin base:

* Colomycin 1,000,000 units is 80 mg colistimethate;[[13]](#cite_note-13)