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Polymyxin Antibiotic

National Cancer Institute

Source

National Cancer Institute. *Polymyxin Antibiotic*. NCI Thesaurus. Code C78160.

Any of the polymyxin antibiotics, cyclic peptides with long hydrophobic ends, obtained from *Bacillus polymyxa* strains. Polymyxin antibiotics exert their antimicrobial effect through their cationic detergent actions on cell membranes. Specifically, they bind to the negatively charged site in the lipopolysaccharide (LPS) layer of the bacterial cell membrane via electrostatic affinity with the positively charged amino groups in the cyclic peptide portion of the polymyxin antibiotic. Subsequently, the fatty acid portion of the polymyxin antibiotic dissolves in the hydrophobic region of the bacterial cell membrane. This results in an alteration in cell membrane structure, an increase in permeability for water and other molecules and disruption of cell wall integrity. This leads to bacterial cell death.