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Neomycin Sulfate/Polymyxin B Sulfate/Dexamethasone

National Cancer Institute

Source

National Cancer Institute. *Neomycin Sulfate/Polymyxin B Sulfate/Dexamethasone*. NCI Thesaurus. Code C121617.

A topical combination preparation containing the sulfate salt form of the aminoglycoside antibiotic neomycin, the sulfate salt form of the polypeptide antibiotic polymyxin B, and the glucocorticoid dexamethasone, with antimicrobial, anti-infective and anti-inflammatory activities. Upon topical application, neomycin irreversibly binds to the bacterial 30S ribosomal subunit, thereby preventing mRNA from binding, causing both misreading and the inhibition of protein synthesis. Polymyxin B binds, with its positively charged amino groups, to negatively charged phospholipids in the outer cell membrane of Gram-negative bacteria, thereby disrupting cell wall integrity and altering the permeability of the bacterial cytoplasmic membrane. Dexamethasone binds to the cytoplasmic glucocorticoid receptor, and this receptor-ligand complex is translocated to the nucleus where it initiates the transcription of genes encoding for anti-inflammatory mediators, such as cytokines and lipocortins.