Product Name: Pristinamycin
Product Number: P018
CAS Number: 270076-60-3
Molecular Formula: \( \text{C}_{45}\text{H}_{54}\text{N}_{8}\text{O}_{10} \) (PI)/\( \text{C}_{28}\text{H}_{35}\text{N}_{3}\text{O}_{7} \) (PII)
Molecular Weight: 866.96 (PI)/525.59 (PII)
Form: Powder
Appearance: white or almost white powder
Source: Streptomyces pristinaespiralis
Storage Conditions: -20°C

Description:

Pristinamycin is a streptogramin antibiotic. It is a mixture of Pristinamycin IA (a macrolide) and Pristinamycin IIA (streptogramin A), a depsipeptide. PI and PII are structurally unrelated but synergistic components. They are co-produced naturally in a ratio of 30:70. It is bactericidal against Staphylococcus spp. and Streptococcus spp.

Mechanism of Action:
Pristinamycin IIA binds to the bacterial 50S subunit of 70S bacterial ribosomes, triggering a conformational change and enhancing the affinity for the second component, Pristinamycin IA. The result is irreversible binding, arrested protein synthesis, and a bactericidal effect. The biosynthetic gene cluster is the largest known antibiotic supercluster with the genes scattered across the sequence region.

Spectrum:

Bactericidal activity against Gram-positive bacteria. Effective against methicillin-resistant S. aureus (MRSA). Effective against erythromycin-resistant Staphylococci and Streptococci.

Microbiology Applications

Eleven strains of Streptococcus pneumoniae were exposed to subinhibitory concentrations of Pristinamycin (or others antibiotics including Azithromycin, Clarithromycin, Clindamycin, Erythromycin, Roxithromycin, Telithromycin) to determine if resistance developed. Daily passaging in subinhibitory concentrations was done for a maximum of 50 days. Altogether, there were a total of 54 mutants with elevated MICs to at least one of these antibiotics. Of these mutants, 20 had Pristinamycin resistance (Davies et al, 2000).

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