



Lincomycin Hydrochloride, USP PRODUCT DATA SHEET

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Product Name:	Lincomycin Hydrochloride, USP
Product Number:	L002
CAS Number:	7179-49-9 (monohydrate); 859-18-7 (anhydrous)
Molecular Formula:	$C_{18}H_{34}N_2O_6S \cdot HCl \cdot H_2O$
Molecular Weight:	461.02
Form:	powder
Appearance:	White or off-white crystalline powder
Solubility:	very soluble in aqueous solution (29.3 mg/mL). Soluble in methanol and ethanol.
Source:	<i>Streptomyces lincolnensis</i> .
Water Content (Karl Fischer):	3.0 - 6.0%
pH:	3.0 - 5.5
Optical Rotation:	+135° to +150°
Storage Conditions:	2-8 °C
Description:	<p>Lincomycin hydrochloride is the hydrochloride form of Lincomycin, provided as the monohydrate. Lincomycin is a naturally occurring lincosamide isolated from <i>Streptomyces lincolnensis</i> by researchers at Upjohn in 1962. This class of antibacterial contains a rare amino acid (4-propyl-N-methylprolin) coupled to an equally rare aminomethylthio-octopyranoside sugar. Lincomycin is often incorrectly considered an aminoglycoside but it actually shares little or no structural similarity. It is effective for Gram-positive bacteria and disrupts protein synthesis.</p> <p>Lincomycin is very soluble in water and soluble in methanol and ethanol.</p> <p>Lincomycin hydrochloride conforms to United States Pharmacopoeia specifications.</p> <p>We also offer:</p> <ul style="list-style-type: none">• Lincomycin hydrochloride, EP (L016)• Lincomycin (L014)
Mechanism of Action:	<p>Lincosamide antibiotics inhibit bacterial growth by targeting the 50S ribosomal subunit preventing peptide bond formation and translocation during protein synthesis. Resistance to lincomycin is commonly attributed to mutations in 50S rRNA preventing lincomycin binding allowing the cell to synthesize proteins free of error.</p>

Spectrum: Lincomycin is a narrow-spectrum antibiotic effective against Gram-positive bacteria, and protozoa. It is effective against *Staphylococcus*, *Streptococcus*, and *Bacterioides*. It has comparable activity to Erythromycin *in vitro*.

Microbiology Applications Lincomycin HCl is commonly used in clinical *in vitro* microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against gram positive and gram negative microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options for infected patients. Representative MIC values include:

- *Staphylococcus aureus* 0.2 µg/mL – 3.2 µg/mL
- *Streptococcus pyogenes* 0.04 µg/mL – 0.8 µg/mL
- For a complete list of lincomycin MIC values, [click here](#).

Plant Biology Applications

Lincomycin provides a powerful plant selection agent that facilitates recovery of plastid transformants. Cultured *Nicotiana* cells were used *in vitro*. Resistant cells are green and sensitive cells are white on the selective medium. Lincomycin is preferred over other antibiotics for chloroplast transformation because it also inhibits callus formation, greening, and subsequent shoot regeneration (Moll et al, 1990).

References:

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