

Product Name:	Spiramycin
Product Number:	S007
CAS Number:	8025-81-8
Molecular Formula:	Spiramycin I: $C_{43}H_{74}N_2O_{14}$
Molecular Weight:	Spiramycin I: 843.05
Form:	Powder
Appearance:	White or yellowish powder
Solubility:	Methanol: Soluble Water: Slightly soluble
Source:	<i>Streptomyces Ambofaciens</i>
Elemental Analysis:	Composition: Spiramycin I: Not less than 80.0% Spiramycin II: Not more than 5.0% Spiramycin III: Not more than 10.0% Sum of Spiramycin I, II, III: Not less than 90.0%
pH:	8.5 - 10.5
Optical Rotation:	-80.0° to -85.0°
Storage Conditions:	2-8°C
Description:	<p>Spiramycin is a broad-spectrum 16-membered ring macrolide antibiotic composed of a mixture of spiramycin I, II, and III. Spiramycin was first isolated by PINNERT-SINDICO in 1954 from <i>Streptomyces ambofaciens</i>.</p> <p>Spiramycin is a bacterial protein synthesis inhibitor, it works by irreversibly binding to the P-site on the 50s ribosome, preventing peptide bond formation and translocation. Spiramycin is effective against gram-negative and gram-positive bacteria, as well as some <i>Toxoplasma</i> parasites.</p> <p>Spiramycin has shown anti-obesity effects. In a recent study (2016), it was shown that spiramycin inhibits adipogenesis in 3T3-L1 cells and ameliorates obesity and associated metabolic indications in HFD-fed mice.</p> <p>Synonyms: Rovamycine, Formacidine, Foromacidine, NSC 55926, Kitasamycin</p>
Mechanism of Action:	Macrolide antibiotics, like spiramycin, inhibit bacterial growth bacteriostatically by targeting the 50S ribosomal subunit preventing peptide bond formation and translocation during protein synthesis. Resistance to spiramycin is commonly attributed to mutations in 50S rRNA preventing spiramycin binding allowing the cell to synthesize proteins free of error.

Spectrum: Spiramycin is a broad-spectrum antibiotic targeting a wide range of gram-positive and gram-negative bacteria. In addition, spiramycin has demonstrated activity against *Toxoplasma* parasites.

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

- *Staphylococcus* spp. 0.031 µg/mL – 0.063 µg/mL
- For a complete list of spiramycin MIC values, [click here](#).

References: Lovmar, Martin, and Tanel Tenson. "The Mechanism of Action of Macrolides, Lincosamides and Streptogramin B Reveals the Nascent Peptide Exit Path in the Ribosome." *Journal of Molecular Microbiology* 330.5 (2003): 1005-014.

PINNERT-SINDICO, S., L. Ninet, and J. PREUD. "HOMME & C." COSAR: A new antibiotic-spiramycin. *Antibiot. Annual*1955 (1954): 724-727.

Kim MO, Ryu HW, Choi J-H, Son TH, Oh S-R, Lee H-S, et al. (2016) Anti-Obesity Effects of Spiramycin *In Vitro* and *In Vivo*. PLoS ONE 11(7): e0158632. <https://doi.org/10.1371/journal.pone.0158632>

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