

Product Name:	Kasugamycin hydrochloride
Product Number:	K005
CAS Number:	19408-46-9
Molecular Formula:	$C_{14}H_{25}N_3O_9 \cdot HCl$
Molecular Weight:	415.82
Form:	Powder
Appearance:	White crystalline powder
Solubility:	is freely soluble in aqueous solution.
Source:	<i>Streptomyces kasugaensis</i>
Melting Point:	203 °C
Storage Conditions:	2-8 °C
Description:	Kasugamycin hydrochloride is a salt form a Kasugamycin, is a broad-spectrum antibacterial and antifungal aminoglycoside originally isolated in 1965 from <i>Streptomyces kasugaensis</i> found near the Kasuga shrine in Japan. This natural product used against yeast and pathogenic fungi such as <i>M. grisea</i> . Kasugamycin is freely soluble in aqueous solution.
Mechanism of Action:	Like many of the known natural antibiotics, kasugamycin inhibits proliferation of bacteria by tampering with their ability to make new proteins, the ribosome being the major target. Kasugamycin inhibits protein synthesis at the step of translation initiation by direct competition with initiator transfer RNA.
Plant Biology Applications	In rice models, kasugamycin is used to prevent and cure <i>M. grisea</i> mycelia formation with <20 µg/mL. In addition, kasugamycin has shown to suppress a number of plant parasitic infections such as leaf spot and apple scab. Kasugamycin is preferentially used over other antifungals due to its lower phytotoxicity and toxicity to animals.
References:	<p>Masukawa H, Tanaka N, Umezawa H. (1968) Inhibition by kasugamycin of protein synthesis in <i>Piricularia oryzae</i>. J Antibiot (Tokyo). 21(1):73-74 PMID 4970570</p> <p>Ochi K et al (2008) Inactivation of KsgA, a 16S rRNA Methyltransferase, causes vigorous emergence of mutants with high-Level Kasugamycin resistance. Antimicrob. Agents. Chemother. 53 (1): 193-201</p> <p>Surkov S et al (2010) Translation initiation region dependcey fo translation initiation in <i>Escherichia coli</i> by IF1 and kasugamycin. FEBS J. 277 (11):2428-2439</p>

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