# Product Data Sheet

Product Name: Virginiamycin S1
Cat. No.: GC11623

## Chemical Properties

| | |
|---|---|
| Cas. No. | 23152-29-6 |
| Chemical Name | N-((6R,9S,10R,13S,15aS,22S,24aS)-22-benzyl-6-ethyl-10,23-dimethyl-5,8,12,15,17,21,24-heptaoxo-13-phenyldocosahydro-12H-pyrido[2,1-f]pyrrolo[2,1-l][1]oxa[4,7,10,13,16]pentaazacyclononadecin-9-yl)-3-hydroxypicolinamide |
| SMILES | O=C1C[C@](C(N[C@@H](C2=CC=CC=C2)C(O[C@H](C)[C@H](NC(C3=C(O)C=CC=N3)=O)C4=O)=O)=O)([H])N(C([C@@](CC5=CC=CC=C5)([H])N(C)C([C@]6([H])CCCN6C([C@H](N4)CC)=O)=O)=O)CC1 |
| Formula | $C_{43}H_{49}N_7O_{10}$ |
| M.Wt | 823.9 |
| Solubility | Soluble in ethanol;methanol;DMSO;dimethyl formamide |
| Storage | Store at -20°C |
| General tips | For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months. |
| Shipping Condition | Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request. |
| Structure | Virginiamycin S1 |

## Background

Virginiamycin S1 is a macrolide antibiotic that reversibly inhibits protein synthesis [1][2][3].

Virginiamycin complex contains two antibiotics, virginiamycin M1 and virginiamycin S1. Streptogramins are divided into class A and class B based on their structures. Virginiamycin S1 is a member of the streptogramin B group of antibiotics, which bind the peptide exit tunnel to inhibit the elongation stage of translation. They show good bactericidal activity against methicillin-resistant S. aureus (MRSA), although resistance in


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MRSA is conferred by the cfr gene. Virginiamycin M1 has activity against gram-positive and in select cases gram-negative bacteria. Combination of group A and B streptogramins exhibit bactericidal activity [1]. Virginiamycin S1 acted synergistically with virginiamycin M1 to irreversibly inhibit protein synthesis in bacteria. In cell-free systems, Virginiamycin M1 and virginiamycin S1 bound to the large ribosomal subunit, and the affinity of ribosomes for VS is increased by VM [2][3].

References:

[1]. Fair RJ, Tor Y. Antibiotics and bacterial resistance in the 21st century. Perspect Medicin Chem. 2014 Aug 28;6:25-64.
[2]. Kehrenberg C, Cuny C, Strommenger B, et al. Methicillin-resistant and -susceptible Staphylococcus aureus strains of clonal lineages ST398 and ST9 from swine carry the multidrug resistance gene cfr. Antimicrob Agents Chemother. 2009 Feb;53(2):779-81.
[3]. Parfait R, Cocito C. Lasting damage to bacterial ribosomes by reversibly bound virginiamycin M. Proc Natl Acad Sci U S A. 1980 Sep;77(9):5492-6.


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