

## Product Data Sheet

Product Name: Quinupristin-Dalfopristin Complex (mesylate)

Cat. No.: GC11466

### Chemical Properties

Cas. No.

Chemical Name 4-[4-(dimethylamino)-N-methyl-L-phenylalanine]-5-[(2S)-5-[(1-azabicyclo[2.2.2]oct-3-ylthio)methyl]-4-oxo-2-piperidinecarboxylic acid]-virginiamycin S<sub>1</sub>, monomethanesulfonate mixture with (3R,4R,5E,10E,12E,14S,26R,26aS)-26-[[2-(diethylamino)ethyl

SMILES O=C1C[C@]([H])(N(C[C@H]1CS[C@@H]2C[NH+]3CCC2CC3)C([C@@]([H])(N(C[C@@]4(CCCN4C([C@@H](CC)N5)=O)C([H])=O)C)CC6=CC=C(C=C6)N(C)C)=O)C(N[C@H](C(O[C@@H]([C@@H](C5=O)NC(C7=C(C=CC=N7)O)=O)C)=O)C8=CC=CC=C8)=O.CS([O-])(=O)=O.O=C(NC/C=C\C(C)=C\C[C@H](C9)O)/C=C/[C@H]([

Formula C<sub>34</sub>H<sub>51</sub>N<sub>4</sub>O<sub>9</sub>S[CH<sub>3</sub>SO<sub>3</sub>] • C<sub>53</sub>H<sub>68</sub>N<sub>9</sub>O<sub>10</sub>S[CH<sub>3</sub>SO<sub>3</sub>] M.Wt 1905.3

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 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C 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

### Background

Quinupristin-Dalfopristin Complex is a mixture of two streptogramin antibiotics.

Quinupristin-dalfopristin complex is a mixture of two streptogramin antibiotics, dalfopristin and quinupristin. Streptogramin antibiotics are divided into types A and B, which in combination can act synergistically.

In vitro: A previous study compared the molecular interactions of the streptogramin combinations Synercid (type A, dalfopristin; type B, quinupristin) and NXL 103 (type A,

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flopristin; type B, linopristin) with the Escherichia coli 70S ribosome. Results showed that the streptogramin A and B components in Synercid and NXL 103 exhibited synergistic antimicrobial activity against certain pathogenic bacteria. Moreover, in transcription-coupled translation assays, only combinations including dalfopristin, the streptogramin A component of Synercid, showed synergy [1].

**In vivo:** A previous animal study aimed to investigate the efficacy of quinupristin/dalfopristin in the prevention of prosthetic graft infection in a rat subcutaneous pouch model. Results showed that quinupristin/dalfopristin had a significantly higher efficacy than levofloxacin and doxycycline. In addition, only the group treated with quinupristin/dalfopristin combined with levofloxacin or doxycycline showed no evidence of staphylococcal infection [2].

**Clinical trial:** In a randomized multicentric trial comparing Synercid with vancomycin for the treatment of nosocomial pneumonia due to gram-positive cocci, the cure rate (56.3% vs 58.3%) were equivalent in the 2 treatment arms. Treatment failures were also similar: 44% vs 42%. Mortality (25% vs 22%) was likewise comparable, as was tolerance [3].

### References:

[1] Noeske, J., Huang, J., Olivier, N.B., et al. Synergy of streptogramin antibiotics occurs independently of their effects on translation. *Antimicrobial Agents and Chemotherapy* 58(9), 5269-5279 (2014).

[2] Ghiselli R, Giacometti A, Cirioni O, Mocchegiani F, Orlando F, Del Prete M, D'Amato G, Scalise G, Saba V. Quinupristin/dalfopristin bonding in combination with intraperitoneal antibiotics prevent infection of knitted polyester graft material in a subcutaneous rat pouch model infected with resistant Staphylococcus epidermidis. *Eur J Vasc Endovasc Surg.* 2002 Sep;24(3):230-4.

[3] Potel G. Value of Synercid in clinical practice: from temporary approval to clinical trial authorization. *Presse Med.* 2001 Sep 8;30(25 Pt 2):XIX-XXII.

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