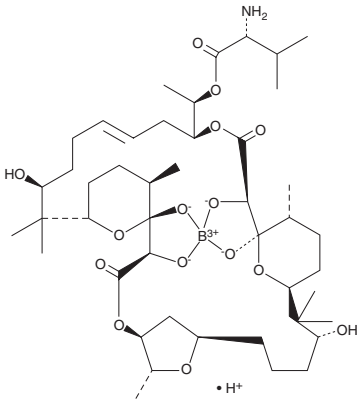
PRODUCT INFORMATION

Boromycin

Item No. 28245



CAS Registry No.:	34524-20-4
Formal Name:	(T-4)-[(1R)-1-[(1S,2R,5S,6R,8R,12R,14S,17R,18S,19R,22S,24Z,28S,30S,33R)-1,2,18,19-tetra(hydroxy-κO)-12,28-dihydroxy-6,13,13,17,29,29,33-heptamethyl-3,20-dioxo-4,7,21,34,35-pentaoxatetracyclo[28.3.1.1^{5,8}.1^{14,18}]hexatriacont-24-en-22-yl]ethyl D-valinato(4-)]-borate(1-), monohydrogen
Synonym:	NSC 121380
MF:	$C_{45}H_{73}BNO_{15}$ • H
FW:	879.9
Purity:	≥98%
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years
Item origin:	Bacterium/*Streptomyces* sp.

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Boromycin is supplied as a solid. A stock solution may be made by dissolving the boromycin in the solvent of choice. Boromycin is soluble in organic solvents such as ethanol, methanol, and DMSO, which should be purged with an inert gas.

Description

Boromycin is a boron-containing macrolide antibiotic that has been found in *Streptomyces*.[1] Boromycin inhibits growth of *B. subtilis* (MIC = 0.05 µg/ml) and induces efflux of potassium ions from *B. subtilis* without affecting Na^+/K^+-ATPase activity.[2] It decreases the synthesis of protein, RNA, and DNA in *B. subtilis* when used at a concentration of 0.05 µg/ml. It inhibits the growth of *B. halodurans* (MIC = 10 ng/ml) and inhibits the futalosine pathway of menaquinone synthesis in *B. halodurans*.[3] Boromycin (3.4 nM) reverses bleomycin-induced cell cycle arrest at the G_2 phase in Jurkat cells.[4] It inhibits replication of the HIV-1 strains LAV-1 and RF and the HIV-2 strain LAV-2 in MT-4 cells (IC_{50}s = 0.008, 0.11, and 0.007 µM, respectively).[1] It also inhibits replication of a clinical isolate of HIV-1, strain KK-1, in MT-4 cells and peripheral blood mononuclear cells (PBMCs; IC_{50}s = 0.14 and <0.1 µM, respectively).

References

1. Kohno, J., Kawahata, T., Otake, T., *et al.* Boromycin, an anti-HIV antibiotic. *Biosci. Biotech. Biochem.* **60(6)**, 1036-1037 (1996).
2. Pache, W. and Zähner, H. Metabolic products of microorganisms. 77. Studies on the mechanism of action of boromycin. *Arch. Mikrobiol.* **67(2)**, 156-165 (1969).
3. Shimizu, Y., Ogasawara, Y., Matsumoto, A., *et al.* Aplasmomycin and boromycin are specific inhibitors of the futalosine pathway. *J. Antibiot. (Tokyo)* **71(11)**, 968-970 (2018).
4. Arai, M., Koizumi, Y., Sato, H., *et al.* Boromycin abrogates bleomycin-induced G2 checkpoint. *J. Antibiot. (Tokyo)* **57(10)**, 662-668 (2004).

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