

Store at
-20°C
#49615

Valinomycin

10 mg

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Background

Valinomycin, also known as NSC 122023, is a naturally occurring antibiotic consisting of a cyclized dodecadepsipeptide isolated from various strains of the genus *Streptomyces*. Valinomycin is a highly selective potassium ionophore that transports K⁺ across lipid membranes inducing cell death through depolarization of the mitochondrial membrane (1). Studies have investigated the critical role of potassium in viral infections (2). Valinomycin has demonstrated the ability to block viral fusion with endosomal membranes, affecting viral transcription and inhibiting viral replication, by collapsing the membrane potential (3,4). Research studies of severe acute respiratory syndrome (SARS) viral replication in Vero E6 cells identified Valinomycin as the most potent inhibitor (EC₅₀ = 0.85 μM) as compared with other possible treatments, such as Reserpine (EC₅₀ = 3.4 μM) and Aescim (EC₅₀ = 6.0 μM) (5).

Molecular Formula

C₅₄H₉₀N₆O₁₈

Molecular Weight

1111.3 g/mol

Purity

>98%

CAS

2001-95-8

Solubility

Soluble in DMSO at 25 mg/ml or ethanol at 25 mg/ml.

Storage

Store lyophilized at -20°C, desiccated. In lyophilized form, the chemical is stable for 24 months. Once in solution, store at -20°C and use within 2 months to prevent loss of potency. *Aliquot to avoid multiple freeze/thaw cycles.*

Directions for Use

Valinomycin is supplied as a lyophilized powder. For a 10 mM stock, reconstitute 10 mg of powder in 900 μl of DMSO. Working concentrations and length of treatment can vary depending on the desired effect.

Background References

1. Abdalah, R. et al. (2006) *Neurosci Lett* 405, 68-73.
2. Punch, E.K. et al. (2018) *J Biol Chem* 293, 9937-44.
3. Norris, M.J. et al. (2018) *Am J Respir Cell Mol Biol* 59, 733-44.
4. Berka, U. et al. (2009) *J Virol* 83, 3778-87.
5. Wu, C.Y. et al. (2004) *Proc Natl Acad Sci U S A* 101, 10012-7.

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