Small Molecules

Sinefungin

Epigenetic modifier; Inhibits DNA methyltransferases (DNMTs)

Catalog # 73812

1 mg

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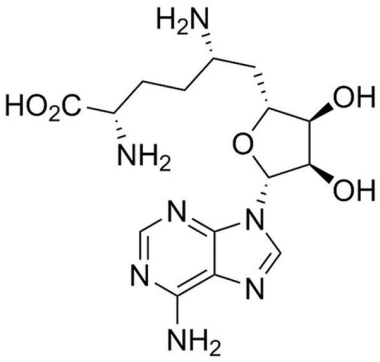
Product Description

Sinefungin is a DNA methyltransferase (DNMT) inhibitor (IC_{50} = 0.1 - 20 µM; Copeland et al.) and an analog of the methyl donor S-adenosyl-L-methionine (SAM; Horiuchi et al.; Nolan).

Molecular Name:	Sinefungin
Alternative Names:	A 9145; Antibiotic 32232RP; Antibiotic A 9145; RP 32232
CAS Number:	58944-73-3
Chemical Formula:	$C_{15}H_{23}N_7O_5$
Molecular Weight:	381.4 g/mol
Purity:	≥ 95%
Chemical Name:	(2S,5S)-2,5-diamino-6-[(2R,3S,4R,5R)-5-(6-aminopurin-9-yl)-3,4-dihydroxyoxolan-2-yl]hexanoic acid
Structure:	

Properties

Physical Appearance:	A white solid
Storage:	Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	· Water ≤ 50 mM For example, to prepare a 10 mM stock solution in water, resuspend 1 mg in 262 µL of water. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in water at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use.

Published Applications

IMMUNOLOGY
· Antiparasitic activity against malarial, trypanosomal, and leishmanial species (Dube et al.; Nolan; Trager et al.).
· Inhibits Newcastle disease and vaccinia virus multiplication (Pugh et al.).
· Inhibits pneumococcal biofilm growth in vitro and colonization in an in vivo rat model (Yadav et al.).

References

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Horiuchi KY et al. (2013) Assay development for histone methyltransferases. Assay Drug Dev Technol 11(4): 227–36.
Nolan LL. (1987) Molecular target of the antileishmanial action of sinefungin. Antimicrob Agents Chemother 31(10): 1542–8.
Pugh CS et al. (1978) Sinefungin, a potent inhibitor of virion mRNA(guanine-7-)-methyltransferase, mRNA(nucleoside-2'-)-methyltransferase, and viral multiplication. J Biol Chem 253(12): 4075–7.
Trager W et al. (1980) Plasmodium falciparum: antimalarial activity in culture of sinefungin and other methylation inhibitors. Exp Parasitol 50(1): 83–9.
Yadav MK et al. (2014) Sinefungin, a natural nucleoside analogue of S-adenosylmethionine, inhibits Streptococcus pneumoniae biofilm growth. Biomed Res Int 2014: 156987.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).