Catalog No.S1517, Natamycin

Technical Data

Molecular Weight (MW)	665.73
Formula	$C_{33}H_{47}NO_{13}$
CAS No.	7681-93-8

Storage	3 years -20℃powder
	6 months-80℃in solvent
Synonyms	Natacyn, Pimaricin

Solubility (25°C) *	*In vitro*	DMSO	7 mg/mL (10.51 mM)
		Water	<1 mg/mL (<1 mM)
		Ethanol	<1 mg/mL (<1 mM)

* <1 mg/ml means slightly soluble or insoluble.
* Please note that Selleck tests the solubility of all compounds in-house, and the actual solubility may differ slightly from published values. This is normal and is due to slight batch-to-batch variations.

Chemical Name	(1R*,3S*,5R*,7R*,8E,12R*,14E,16E,18E,20E,22R*,24S*,25R*,26S*)]-22-[(3-Amino-3,6-dideoxy-β-D-mannopyranosyl)oxy]-1,3,26-trihydroxy-12-methyl-10-oxo-6,11,28-trioxatricyclo[22.3.1.05,7]octacosa-8,14,16,18,20-pentaene-25-carboxylic acid

Preparing Stock Solutions

	1 mg	5 mg	10 mg
1 mM	1.5021 mL	7.5106 mL	15.0211 mL
5 mM	0.3004 mL	1.5021 mL	3.0042 mL
10 mM	0.1502 mL	0.7511 mL	1.5021 mL
50 mM	-	-	-

Biological Activity

Description	Natamycinis is a naturally occurring antifungal agent produced during fermentation by the bacterium Streptomyces natalensis, commonly found in soil.
Targets	
IC50	
In vitro	Natamycin binds specifically to ergosterol present in model membranes. Natamycin does not change the permeability of the yeast plasma membrane under conditions that growth is blocked. [1] Natamycin blocks the fusion of isolated vacuoles without compromising the barrier function of the vacuolar membrane. Natamycin perturbs the cellular vacuole morphology, causing the formation of many more small vacuolar structures in yeast cells. Natamycin inhibits the priming stage of vacuole fusion. [2] Natamycin shows low MIC against the dematiaceous fungi, Curvularia species. [3] Natamycin is complexed with gamma-cyclodextrin (NT-gamma CyD) to increase the solubility and stability of NT in aqueous solutions and

	reduce the side effects of the drug without decreasing antimycotic activity. [4] MIC90 of Natamycin alone and Natamycin-gamma CyD complexes are below 0.0313 mg/mL, suggesting that complexation with gamma CyD has effectively increased the antimycotic activity of Natamycin, thus indicating the clinical usefulness of Natamycin-gamma CyD complexes. [5]
In vivo	
Features	

Conversion of different model animals based on BSA (Value based on data from FDA Draft Guidelines)

Species	Mouse	Rat	Rabbit	Guinea pig	Hamster	Dog	Monkey	Baboon
Weight (kg)	0.02	0.15	1.8	0.4	0.08	10	3	12
Body Surface Area (m^2)	0.007	0.025	0.15	0.05	0.02	0.5	0.24	0.6
K_m factor	3	6	12	8	5	20	12	20

Animal A (mg/kg) = Animal B (mg/kg) multiplied by $\frac{\textbf{Animal B } K_m}{\textbf{Animal A } K_m}$

For example, to modify the dose of resveratrol used for a mouse (22.4 mg/kg) to a dose based on the BSA for a rat, multiply 22.4 mg/kg by the K_m factor for a mouse and then divide by the K_m factor for a rat. This calculation results in a rat equivalent dose for resveratrol of 11.2 mg/kg.

$$\text{Rat dose (mg/kg)} = \text{mouse dose (22.4 mg/kg)} \times \frac{\text{mouse } K_m(3)}{\text{rat } K_m(6)} = 11.2 \text{ mg/kg}$$

1

References

[1] te Welscher YM, et al. J Biol Chem, 2008, 283(10), 6393-6401.

[2] te Welscher YM, et al. Antimicrob Agents Chemother, 2010, 54(6), 2618-2625.

[3] Pradhan L, et al. Indian J Ophthalmol, 2011, 59(6), 512-514.

[4] Bruin GJ, et al. Drug Metab Dispos, 2008, 36(12), 2523-2538.

[5] Cevher E, et al. J Pharm Sci, 2008, 97(10), 4319-4335.

PLEASE KEEP THE PRODUCT UNDER -20°C FOR LONG-TERM STORAGE.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE

Specific storage and handling information for each product is indicated on the product datasheet. Most Selleck products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Short-term storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage.

We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.