Product Data Sheet

Product Name: Berninamycin A
Cat. No.: GC13475

Chemical Properties

Cas. No.	58798-97-3
Chemical Name	L-threonyl-2-[(1Z)-1-amino-1-propen-1-yl]- 5-methyl-4-oxazolecarbonyl-2,3-didehydroalanyl-3-methyl-L-threonyl-2-(1-aminoethenyl)- 5-methyl-4-oxazolecarbonyl-2,3-didehydroalanyl-6-[2-(1-aminoethenyl)- 4-oxazolyl]-5-(4-carboxy-2-thiazolyl)-2-pyridinecarbony
SMILES	O=C(NC(C(NC(C(N)=O)=C)=O)=C)C1=CC=C(C2=NC(C(N[C@]([C@@H](C)O)([H])C(N/C(C3=NC4=C(C)O3)=C\C)=O)=O)=CS2)C(C5=COC(C(NC(C(NC(C6=C(C)OC(C(NC([C@@H](NC(C(NC4=O)=C)=O)C(C)(O)C)=O)=C)=N6)=O)=C)=O)=C)=N5)=N1
Formula	$C_{51}H_{51}N_{15}O_{15}S$
M.Wt	1146.1
Solubility	DMF: soluble,DMSO: soluble,Ethanol: moderately soluble
Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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	Berninamycin A

Background

Berninamycin A is a macrocyclic thiopeptide antibiotic first isolated from S. bernensis [1]. Thiopeptides are sulfur containing highly modified macrocyclic antibiotics with a central pyridine/tetrapyridine/dehydropiperidine ring with up to three thiazole substituents on positions 2, 3 and 6. Thiazole antibiotics thiostrepton behaves as proteasome inhibitor in mammalian tumor cells. Berninamycin showed no proteasome inhibitory activity [2]. It has been reported that the action mode of berninamycin on bacterial protein synthesis was related to that of a dissimilar compound thiostrepton. The antibiotics could bind to the complex of 23S RNA with protein L11 and both affect multiple functions of the ribosomal A site [3]. Berninamycin A was involved in inducing the transcriptional activator TipA in Streptomyces [4].

References:
[1] Lau R C M, Rinehart K L. Berninamycins B, C, and D, minor metabolites from Streptomyces bernensis[J]. The Journal of antibiotics, 1994, 47(12): 1466-1472.
[2] Pandit B, Bhat U G, Gartel A L. Proteasome inhibitory activity of thiazole antibiotics[J]. Cancer biology & therapy, 2011, 11(1): 43-47.
[3] J. Thompson, E. Cundliffe and M. J. R. Stark. The mode of action of berninamycin and mechanism of resistance in the producing organism, Streptomyces bernensis. J.Gen.Microbiol. 128(4), 875-884 (1982).
[4]. M. L. Chiu, M. Folcher, T. Katoh, et al. Broad spectrum thiopeptide recognition specificity of the Streptomyces lividans TipAL protein and its role in regulating gene expression. The Journal of Biological Chemisty 274(29), 20578-20586 (1999).

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