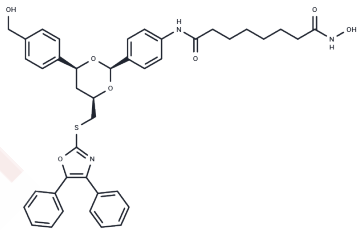
Data Sheet (Cat.No.T6327)

TargetMol

Tubacin

Chemical Properties



CAS No. : 537049-40-4

Formula: C41H43N3O7S

Molecular Weight: 721.86

Appearance: no data available

Storage: store at low temperature
Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Tubacin is a highly potent and selective, reversible, cell-permeable HDAC6 inhibitor with an IC50 of 4 nM, approximately 350-fold selectivity over HDAC1.
Targets(IC50)	HDAC,Virus Protease
In vitro	Tubacin, without directly stabilizing microtubules, induces an increase in α-tubulin acetylation with EC50 of 2.5 μM in A549 cells. Tubacin inhibits HDAC6-mediated α-tubulin deacetylation, and inhibits the migration of both wild-type and HDAC6-overexpressing cells. Tubacin, in combination with paclitaxel, synergistically enhances tubulin acetylation. Tubacin significantly inhibits both drug-sensitive and drug-resistant MM cell growth with IC50 of 5-20 μM, and induces cell apoptosis by activation of caspases.
In vivo	In chick embryos, inhibition of HDAC6 activity by Tubacin reduces the formation of new blood vessels in matrigel/nylon mesh. In angioreactors implanted in mice, Tubacin also impairs the formation of new blood vessels.
Kinase Assay	Enzyme Inhibition Assay:Enzyme inhibition assays are performed using the Reaction Biology HDAC Spectrum platform. The HDAC1, 2, 4, 5, 6, 7, 8, 9, 10, and 11 assays used isolated recombinant human protein; HDAC3/NcoR2 complex is used for the HDAC3 assay. Substrate for HDAC1, 2, 3, 6, 10, and 11 assays is a fluorogenic peptide from p53 residues 379-382 (RHKKAc); substrate for HDAC8 is fluorogenic diacyl peptide based on residues 379-382 of p53 (RHKAcKAc). Acetyl-Lys(trifluoroacetyl)-AMC substrate is used for HDAC4, 5, 7, and 9 assays. Compounds are dissolved in DMSO and tested in 10-dose IC50 mode with 3-fold serial dilution starting at 30 μM. Control Compound Trichostatin A (TSA) is tested in a 10-dose IC50 with 3-fold serial dilution starting at 5 μM. IC50 values are extracted by curve-fitting the dose/response slopes.
Cell Research	Cell lines: Drug-sensitive (MM.1S,U266,INA-6,and RPMI8226) and drug-resistant (RPMI-LR5 and RPMI-Dox40) MM cell lines. Concentrations: ~20 μM. Incubation Time: 72 hours. Method:The inhibitory effect of bortezomib and/or tubacin on MM cell growth is assessed by measuring 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) dye absorbance.All experiments are performed in quadruplicate.
Animal Research	Animal Models: Athymic nude mice implanted with angioreactorsFormulation: DMSODosages: --Administration: Tubacin is filled in semiclosed angioreactors, and then implanted into the mice.

Solubility Information

Solubility	DMSO: 93 mg/mL (128.83 mM),Sonication is recommended. Ethanol: <1 mg/mL, H2O: <1 mg/mL, (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.3853 mL	6.9266 mL	13.8531 mL
5 mM	0.2771 mL	1.3853 mL	2.7706 mL
10 mM	0.1385 mL	0.6927 mL	1.3853 mL
50 mM	0.0277 mL	0.1385 mL	0.2771 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Butler KV, et al. J Am Chem Soc. 2010, 132(31), 10842-0846.
Wang C, Huang M, Lin Y, et al.ENO2-derived phosphoenolpyruvate functions as an endogenous inhibitor of HDAC1 and confers resistance to antiangiogenic therapy.Nature Metabolism.2023: 1-22.
Zeng Q, Chen Z, Li S, et al.HDAC6 deacetylates TRIM56 to negatively regulate cGAS-STING-mediated type I interferon responses.EMBO reports.2025: 1-28.
Haggarty SJ, et al. Proc Natl Acad Sci U S A. 2003, 100(8), 4389-4394.
Marcus AI, et al. Cancer Res. 2005, 65(9), 3883-3893.
Hideshima T, et al. Proc Natl Acad Sci U S A. 2005, 102(24), 8567-8572.
Li D, et al. Protein Cell. 2011, 2(2), 150-160.
Lu CY, et al. Tubacin, an HDAC6 Selective Inhibitor, Reduces the Replication of the Japanese Encephalitis Virus via the Decrease of Viral RNA Synthesis. Int J Mol Sci. 2017 May 1;18(5).