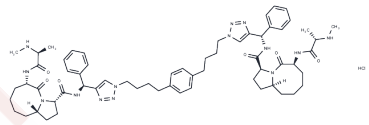
Data Sheet (Cat.No.T12932)

TargetMol

SM-164 Hydrochloride (957135-43-2 free base)

Chemical Properties



CAS No. :

Formula: C62H85ClN14O6

Molecular Weight: 1157.88

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	SM-164 Hydrochloride is a cell-permeable Smac mimetic compound. SM-164 binds to XIAP protein containing both the BIR2 and BIR3 domains(IC50 value of 1.39 nM) and functions as an extremely potent antagonist of XIAP.
Targets(IC50)	IAP
In vitro	SM-164 is a non-peptide, bivalent small-molecule, cell-permeable, which mimics Smac protein for targeting XIAP. SM-164 binds to XIAP containing both BIR domains(IC50 of 1.39 nM), being 300 and 7000-times more potent than its monovalent counterparts and the natural Smac AVPI peptide, respectively. SM-164 concurrently interacts with both BIR domains in XIAP and functions as an ultra-potent antagonist of XIAP in both cell-free functional and cell-based assays. SM-164 targets cellular XIAP and effectively induces apoptosis at concentrations as low as 1 nM in leukemia cancer cells, while having a minimal toxicity to normal human primary cells at 10,000 nM[1]. The binding affinities of SM-164 to XIAP, cIAP-1, and cIAP-2 proteins are determined using fluorescence-polarization based assays. SM-164 has a Ki value of 0.31 nM to cIAP-1 protein containing both BIR2 and BIR3 domains.SM-164 has a Ki value of 0.56 nM to XIAP protein containing both BIR2 and BIR3 domains. SM-164 binds to cIAP-2 BIR3 protein with Ki values of 1.1 nM. Addition of exogenous TNFα can significantly enhance the activity of these Smac mimetics, especially for SM-164, in resistant cancer cell lines such as HCT116 and MDA-MB-453[2].
In vivo	In the MDA-MB-231 xenograft model ,SM-164 is highly effective in inhibition of tumor growth and capable of achieving tumor regression . Treatment with SM-164 at 1 mg/kg completely inhibits tumor growth during the treatment. Treatment with SM-164 at 5 mg/kg reduces the tumor volume from 147±54 mm3 at the beginning of the treatment (day 25) to 54±32 mm3 at the end of the treatment (day 36), a reduction of 65%. The strong antitumor activity by SM-164 is long lasting and not transient. SM-164 at 5 mg/kg is statistically more effective than Taxotere at the end of the treatment (P<0.01) or when the tumor size in the control group reaches 750 mm3 (P<0.02)[2].

Solubility Information

Solubility	H2O: 106 mg/mL (91.55 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.8636 mL	4.3182 mL	8.6365 mL
5 mM	0.1727 mL	0.8636 mL	1.7273 mL
10 mM	0.0864 mL	0.4318 mL	0.8636 mL
50 mM	0.0173 mL	0.0864 mL	0.1727 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Sun H, et al. Design, synthesis, and characterization of a potent, nonpeptide, cell-permeable, bivalent Smac mimetic that concurrently targets both the BIR2 and BIR3 domains in XIAP. J Am Chem Soc. 2007 Dec 12;129(49): 15279-94.

Lu J, et al. SM-164: a novel, bivalent Smac mimetic that induces apoptosis and tumor regression by concurrent removal of the blockade of cIAP-1/2 and XIAP. Cancer Res. 2008 Nov 15;68(22):9384-93.