

# SM-164 Hydrochloride

Catalog No: tcsc0041048



## Available Sizes

Size: 5mg

Size: 10mg

Size: 50mg



## Specifications

### Formula:

$C_{62}H_{85}ClN_{14}O_6$

### Pathway:

Apoptosis

### Target:

IAP

### Purity / Grade:

>98%

### Solubility:

H<sub>2</sub>O : ≥ 106 mg/mL (91.55 mM)

### Observed Molecular Weight:

1157.88

## Product Description

SM-164 Hydrochloride is a cell-permeable Smac mimetic compound. SM-164 binds to **XIAP** protein containing both the BIR2 and BIR3 domains with an **IC<sub>50</sub>** value of 1.39 nM and functions as an extremely potent antagonist of **XIAP**.

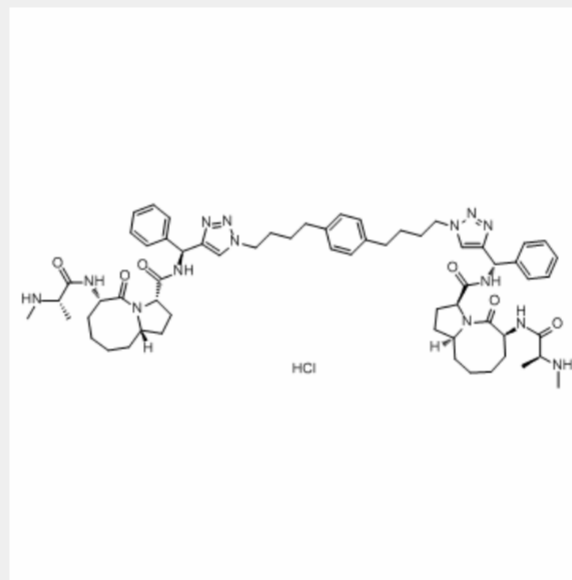
IC<sub>50</sub> & Target: IC<sub>50</sub>: 1.39 nM (XIAP)<sup>[1]</sup>

Ki: 0.56 nM to (XIAP), 0.31 nM to (cIAP-1), 1.1 nM (cIAP-2)<sup>[2]</sup>

### *In Vitro*:

SM-164 is a non-peptide, cell-permeable, bivalent small-molecule, which mimics Smac protein for targeting XIAP. SM-164 binds to XIAP containing both BIR domains with an  $IC_{50}$  value 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<sup>[1]</sup>. 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  $K_i$  value of 0.56 nM to XIAP protein containing both BIR2 and BIR3 domains. SM-164 has a  $K_i$  value of 0.31 nM to cIAP-1 protein containing both BIR2 and BIR3 domains. SM-164 binds to cIAP-2 BIR3 protein with  $K_i$  values of 1.1 nM. Addition of exogenous  $TNF\alpha$  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<sup>[2]</sup>.

**In Vivo:** SM-164 is evaluated for its ability to inhibit tumor growth. SM-164 is highly effective in inhibition of tumor growth and capable of achieving tumor regression in the MDA-MB-231 xenograft model. 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  $147\pm 54$  mm<sup>3</sup> at the beginning of the treatment (day 25) to  $54\pm 32$  mm<sup>3</sup> 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 (P3 (P[2]).



All products are for RESEARCH USE ONLY. Not for diagnostic & therapeutic purposes!