Small Molecules

SAHA

Epigenetic modifier; Inhibits HDAC1 and HDAC3

Catalog #	73902	100 mg
	73904	500 mg

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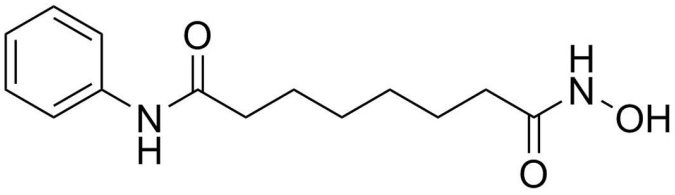
Product Description

SAHA (suberoylanilide hydroxamic acid) is a potent inhibitor of class I and class II histone deacetylases (HDACs). This compound inhibits the activities of HDAC1 and HDAC3 (IC_{50} = 10 nM and 20 nM, respectively; Richon et al.). SAHA exhibits antiproliferative properties and can cause cell cycle arrest at G1 (Marks & Breslow).

Molecular Name:	SAHA
Alternative Names:	Suberoylanilide Hydroxamic Acid; Vorinostat
CAS Number:	149647-78-9
Chemical Formula:	$C_{14}H_{20}N_2O_3$
Molecular Weight:	264.3 g/mol
Purity:	≥ 98%
Chemical Name:	N-Hydroxy-N'-phenyloctanediamide
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 75 mM · Absolute ethanol ≤ 0.9 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 3.78 mL of DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

REPROGRAMMING
· Improves reprogramming efficiency from human and mouse somatic to induced pluripotent stem cells (Huangfu et al.).
CANCER RESEARCH
· Downregulates homologous recombination and leads to apoptosis in ovarian cancer cells when used in combination with olaparib (Konstantinopoulos et al.).
· Downregulates Nanog expression, which leads to inhibition of proliferation in head and neck cancer stem cells (Kumar et al.).

References

Huangfu D et al. (2008) Induction of pluripotent stem cells by defined factors is greatly improved by small-molecule compounds. Nat Biotechnol 26(7): 795–7.

Konstantinopoulos PA et al. (2014) Suberoylanilide hydroxamic acid (SAHA) enhances olaparib activity by targeting homologous recombination DNA repair in ovarian cancer. Gynecol Oncol 133(3): 599–606.

Kumar B et al. (2015) Suberoylanilide hydroxamic acid (SAHA) reverses chemoresistance in head and neck cancer cells by targeting cancer stem cells via the downregulation of nanog. Genes Cancer 6(3–4): 169–81.

Marks PA & Breslow R. (2007) Dimethyl sulfoxide to vorinostat: development of this histone deacetylase inhibitor as an anticancer drug. Nat Biotechnol 25(1): 84–90.

Richon VM et al. (1998) A class of hybrid polar inducers of transformed cell differentiation inhibits histone deacetylases. Proc Natl Acad Sci USA 95(6): 3003–7.

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