Trichostatin A

Histone Deacetylase Inhibitor

Catalog code: met-tsa-1

https://www.invivogen.com/trichostatin-a

For research use only

Version 19A15-MM

PRODUCT INFORMATION

Contents

1 mg of Trichostatin A

Storage and stability

- Trichostatin A is shipped at room temperature. Store at -20°C.
- Upon resuspension, prepare aliquots of Trichostatin A and store at -20 °C. Resuspended product is stable for 6 months. Avoid repeated freeze-thaw cycles.

Quality control

- Purity: ≥90% (UHPLC)
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

Trichostatin A (TSA), an antifungal antibiotic produced by *Streptomyces hygroscopicus*[1], is a potent and specific inhibitor of histone deacetylases (HDACs), which are overexpressed in various cancers and closely correlate with oncogenic factors.

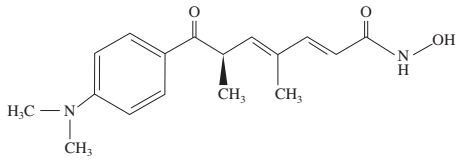
Trichostatin A is active at nanomolar concentrations in mammalian cells. By suppressing the activity of HDACs, it leads to increased histone acetylation, thereby causing highly acetylated histones to accumulate in the cell[2]. This in turn induces enhanced expression of specific genes that elicit extensive cellular morphologic and metabolic changes such as growth arrest, differentiation and apoptosis. At submicromolar concentrations Trichostatin A has been shown to induce apoptosis in diverse cancer cells while exhibiting very low toxicity to normal cells.

Interestingly, HDACs epigenetically silence transcription of the autophagy-related genes Atg and LC3. Thus, HDAC inhibitors like Trichostatin A and SAHA can lead to augmented levels of Atg and LC3 proteins and consequently, promote autophagy.

1. Tsuji N. *et al.*, 1976. A new antifungal antibiotic, trichostatin. J Antibiot (Tokyo). 29(1):1-6. **2. Yoshida M. *et al.*, 1990.** Potent and specific inhibition of mammalian histone deacetylase both in vivo and in vitro by trichostatin A. J Biol Chem. 265(28):17174-9. **3. Arriaga JM. *et al.*, 2014.** Metallothionein 1G and zinc sensitize human colorectal cancer cells to chemotherapy. Mol Cancer Ther., 13(5):1369-81. **4. Höring E. *et al.*, 2013.** The histone deacetylase inhibitor trichostatin a promotes apoptosis and antitumor immunity in glioblastoma cells. Anticancer Res., 33(4):1351-60.

CHEMICAL PROPERTIES

CAS number: 58880-19-6
Formula: $C_{17}H_{22}N_2O_3$
Molecular weight: 302.37
Solubility: DMSO (2 mg/ml)
Structure:



METHODS

Preparation of 2 mg/ml stock solution

1. Add 500 µl of DMSO to 1 mg Trichostatin A. Mix by vortexing.
2. Use immediately or prepare aliquots and store at 20°C.
3. Prepare further dilutions using sterile, endotoxin-free water or aqueous buffers.

Working concentration: 30-600 ng/ml (0.1-2 µM)

PROTOCOLS

For reference only; as described in the indicated publications.

Cell Culture Assay[3]
Cells: Human colorectal cancer cell lines HCT116 and HT-29
Working concentration: 30 ng/ml (0.1 µM)
Incubation time: 24 h
Method: Cell proliferation (MTT assay)

Cell Culture Assay[4]
Cells: Human malignant glioma cells lines LNT-229 and LN-308
Working concentration: 600 ng/ml (2 µM)
Incubation time: 24 h
Method: Viability and cell growth assays (crystal violet and trypan blue staining)

RELATED PRODUCTS

Product	Description	Cat. Code
Leptomycin B	Nuclear export inhibitor	tlrl-lep
SAHA	Pan-HDAC inhibitor	inh-saha

TECHNICAL SUPPORT
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