Product Name: M344

Revision Date: 6/30/2018

Product Data Sheet

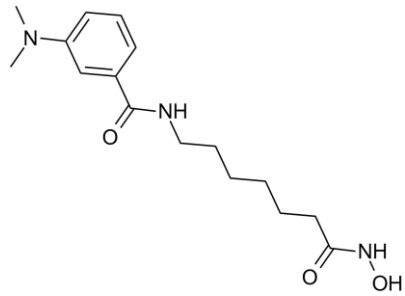
Chemical Properties

Product Name: M344

Cas No.: 251456-60-7

M.Wt: 307.39

Formula: C16H25N3O3



Synonyms: Histone Deacetylase Inhibitor III,MS344

Chemical Name: 4-(dimethylamino)-N-[7-(hydroxyamino)-7-oxoheptyl]benzamide

Canonical SMILES: CN(C)C1=CC=C(C=C1)C(=O)NCCCCCCC(=O)NO

Solubility: ≥14.75 mg/mL in DMSO, ≥12.88 mg/mL in EtOH with ultrasonic, <2.5 mg/mL in H2O

Storage: Store at -20°C

General tips: For obtaining a higher solubility , please warm the tube at 37° C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20° C for several months.

Shopping Condition: Evaluation sample solution : ship with blue ice
All other available size: ship with RT , or blue ice upon request

Biological Activity

Targets : DNA Damage/DNA Repair

Pathways: HDAC

Description:

M344 is a potent inhibitor of HDAC with IC50 value of 100 nM and enable the induction of cell differentiation [1].
Treatment with M344 for 1 or 3 days induced a decreased relative p53 mRNA level and increased p21waf1/cip1 mRNA expression while no change in p53 protein. The result demonstrated the independent of p53 of inhibitory effects of M344 on MCF-7 cell growth. And the increased

expression of the pro-apoptotic Puma, which can be induced by p53-independent pathways, is in accordance with the suppression of MCF-7 cell growth observed after the M344 treatment. On the other hand, M344 also show the ability in increasing the response to radiation in SCC-35 and SQ-20B human squamous carcinoma lines [2].
In MEL DS19 cells, M344 shows a much more significant effect on cell proliferation than the effect on cell differentiation. M344 exhibits toxic at concentrations of above 10 μM, when only 20% of the surviving cell population at most are induced to differentiate. M344 significantly inhibits proliferation of embryonic nervous system tumor cells, including medulloblastoma cells (D341 MED) with GI50 value of 0.65 μM and neuroblastoma cells (CH-LA 90) with GI50 value of 0.63 μM [1, 3].
M344 also plays an important role in the modification of histone and transcription factor of NF-kB in regulating HIV-1 LTR gene expression, showing the potential anti-latency therapies. Experiments were carried out in the cells, which latently infected Jurkat cells encoding the green fluorescence protein (GFP) under control of the HIV-1 LTR that act as a marker of expression of HIV-1 LTR, 72 hours after treatment with 200 nM M344, expression of HIV-1 activity was found, and the percentage of GFP-expressing cells was detected as high as 25.2% more than the cells which was subjected to mock treatment [4].

***Reference**:*

[1]. Jung M, Brosch G , Kolle D, et al. Amide analogues of trichostatin A as inhibitors of histone deacetylase and inducers of terminal cell differentiation. JOURNAL OF MEDICINAL CHEMISTRY, 1999, 42 (22): 4669-4679.
[2]. Yeung A, Bhargava RK, Ahn, R, et al. HDAC inhibitor M344 suppresses MCF-7 breast cancer cell proliferation. BIOMEDICINE & PHARMACOTHERAPY, 2012, 66 (3): 232-236.
[3]. Furchert SE, Lanvers-Kaminsky C , Jurgens H , et al. Inhibitors of histone deacetylases as potential therapeutic tools for high-risk embryonal tumors of the nervous system of childhood. INTERNATIONAL JOURNAL OF CANCER, 2007, 120 (8): 1787-1794.
[4]. Ying H, Zhang YH , Zhou X , et al. Selective Histonedeacetylase Inhibitor M344 Intervenes in HIV-1 Latency through Increasing Histone Acetylation and Activation of NF-kappaB. PLOS ONE, 2012, 7 (11): e48832.

Protocol

Cell experiment:

Cell lines	MCF-7 breast cancer cell line
Preparation method	The solubility of this compound in DMSO is > 14.75 mg/ml. General tips for obtaining a higher concentration: Please warm the tube at 37℃ for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20℃ for several months.
Reacting conditions	
Applications	Bonferroni posthoc analysis indicated that treatment of MCF-7 cells with M344 for 1 day caused a significant inhibition at 50 μM, whereas treatment for 3 days showed significant inhibition at 10

	μM, 50 μM and 100 μM, with a maximal inhibition of 40% at 100 μM. After 5 days, all concentrations of M344 caused a significant suppression of MCF-7 cell growth, with a maximal inhibition of 60% observed at 10 μM.

Animal experiment [3]:

Animal models	Brain slice from 5-day-old Wistar rats
Dosage form	Submicromolar doses
Applications	Suberoylanilide hydroxamic acid (SAHA) increased survival motor neuron (SMN) levels in several neuroectodermal tissues, including rat hippocampal brain slices and motoneurone-rich cell fractions. SAHA activated survival motor neuron gene 2 (SMN2) and inhibited HDACs at submicromolar doses. In contrast to SAHA, M344 displayed unfavourable toxicity profiles.
Other notes	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

Reference:
[1] Yeung A, Bhargava RK, Ahn, R, et al. HDAC inhibitor M344 suppresses MCF-7 breast cancer cell proliferation. BIOMEDICINE & PHARMACOTHERAPY, 2012, 66 (3): 232-236.
[2] Hahnen E et al. In vitro and ex vivo evaluation of second-generation histone deacetylase inhibitors for the treatment of spinal muscular atrophy. J Neurochem. 2006 Jul;98(1):193-202.

Product Citations

1.Bagnall NH, Hines BM, et al. "Insecticidal activities of histone deacetylase inhibitors against a dipteran parasite of sheep, Lucilia cuprina." Int J Parasitol Drugs Drug Resist. 2017 Apr;7(1):51-60. PMID:28110187

Caution

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

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