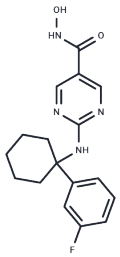
Data Sheet (Cat.No.TQ0074)

TargetMol

ACY-775

Chemical Properties



CAS No. : 1375466-18-4

Formula: C17H19FN4O2

Molecular Weight: 330.36

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	ACY-775 is an effective and specific inhibitor of HDAC6 (IC50: 7.5 nM).
Targets(IC50)	HDAC
In vitro	Upon treatment with ACY-775, a clear enhancement of the acetylation of α-tubulin is visible, while histone acetylation remains unaltered. Acetylation of α-tubulin is visualized by immunofluorescence and the intensity in the neurites of the neurons is quantified and normalized to the length of the fluorescent signal. In vehicle-treated DRG neurons, acetylated α-tubulin is already present. Upon treatment with ACY-775, the signal intensity of acetylated α-tubulin increases significantly. A significant increase in motility of mitochondria and also the total number of mitochondria within the neurites are observed compared with vehicle-treated DRG neurons. A significantly higher number of retrogradely transport mitochondria is observed in DRG neurons treated with ACY-775 compared with vehicle-treated cells [1].
In vivo	Biodistribution profiles of ACY-775 are examined after acute dosing at 5 or 50?mg/kg over 2?h. At t=30?min after acute 50?mg/kg injection, respective plasma levels of ACY-775 is 1359?ng/mL (4.1?μM). Elimination from the plasma is rapid, with a plasmatic half-life of 12?min and a concentration below 10?ng/mL after 2?h. When ACY-775 (50?mg/kg) is administered repeatedly in wild-type mice at 24?h, 4?h, and 30?min before killing, significant increases in α-tubulin acetylation are observed in all tested brain regions [2].
Cell Research	Undifferentiated RN46A-B14 cells are grown. They are treated with 2.5?μM ACY-738, ACY-775, tubastatin A, 0.6?μM TSA or vehicle (0.1% DMSO) for 4?h. Samples are processed using a histone extraction kit and quantified using protein assay [2].
Animal Research	Mice are tested for immobility in the TST. At 30?min or 2?h after i.p. injection of ACY-738 (5, 50?mg/kg), ACY-775 (5, 50?mg/kg), and citalopram (0.5, 2, 20?mg/kg), a combination of the previous, or vehicle, mice are attached to the test rig and time immobile over 6?min is recorded. For open-field activity, mice are injected with ACY-738 or ACY-775 at 5, 10, or 50?mg/kg or vehicle and allowed to explore [2].

Solubility Information

Solubility	DMSO: 100 mg/mL (302.7 mM),Sonication and heating are recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (12.11 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.027 mL	15.135 mL	30.270 mL
5 mM	0.6054 mL	3.027 mL	6.054 mL
10 mM	0.3027 mL	1.5135 mL	3.027 mL
50 mM	0.0605 mL	0.3027 mL	0.6054 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

Veronick Benoy, et al. Development of Improved HDAC6 Inhibitors as Pharmacological Therapy for Axonal Charcot-Marie-Tooth Disease. Neurotherapeutics. 2017 Apr; 14(2): 417-428.

Jeanine Jochems et al. Antidepressant-Like Properties of Novel HDAC6-Selective Inhibitors with Improved Brain Bioavailability. Neuropsychopharmacology. 2014 Jan; 39(2): 389-400.