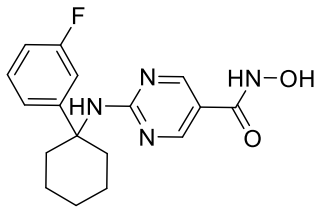
Product data sheet

MedKoo Cat#: 206493 Name: ACY-775 CAS#: 1375466-18-4 Chemical Formula: $C_{17}H_{19}FN_4O_2$ Exact Mass: 330.1492 Molecular Weight: 330.36	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

ACY-775 is a potent and selective HDAC6 inhbiitor. ACY-775 inhibits HDAC6 with low nanomolar potency and a selectivity of 60- to 1500-fold over class I HDACs. ACY-775 shares the antidepressant-like properties of other HDAC inhibitors, such as SAHA and MS-275, in the tail suspension test and social defeat paradigm.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	35.33	106.94
DMF	20.0	60.54
DMF:PBS (pH 7.2) (1:4)	0.2	0.61
Ethanol	34.5	104.43

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.03 mL	15.14 mL	30.27 mL
5 mM	0.61 mL	3.03 mL	6.05 mL
10 mM	0.30 mL	1.51 mL	3.03 mL
50 mM	0.06 mL	0.30 mL	0.61 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Benoy V, Vanden Berghe P, Jarpe M, Van Damme P, Robberecht W, Van Den Bosch L. Development of Improved HDAC6 Inhibitors as Pharmacological Therapy for Axonal Charcot-Marie-Tooth Disease. Neurotherapeutics. 2017 Apr;14(2):417-428. doi: 10.1007/s13311-016-0501-z. PMID: 27957719; PMCID: PMC5398982.
2. Jochems J, Boulden J, Lee BG, Blendy JA, Jarpe M, Mazitschek R, Van Duzer JH, Jones S, Berton O. Antidepressant-like properties of novel HDAC6-selective inhibitors with improved brain bioavailability. Neuropsychopharmacology. 2014 Jan;39(2):389-400. doi: 10.1038/npp.2013.207. Epub 2013 Aug 19. PMID: 23954848; PMCID: PMC3870780.

In vivo study

1. Benoy V, Vanden Berghe P, Jarpe M, Van Damme P, Robberecht W, Van Den Bosch L. Development of Improved HDAC6 Inhibitors as Pharmacological Therapy for Axonal Charcot-Marie-Tooth Disease. Neurotherapeutics. 2017 Apr;14(2):417-428. doi: 10.1007/s13311-016-0501-z. PMID: 27957719; PMCID: PMC5398982.

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2. Jochems J, Boulden J, Lee BG, Blendy JA, Jarpe M, Mazitschek R, Van Duzer JH, Jones S, Berton O. Antidepressant-like properties of novel HDAC6-selective inhibitors with improved brain bioavailability. Neuropsychopharmacology. 2014 Jan;39(2):389-400. doi: 10.1038/npp.2013.207. Epub 2013 Aug 19. PMID: 23954848; PMCID: PMC3870780.

7. Bioactivity

Biological target:

ACY-775 is an inhibitor of the of histone deacetylase 6 (HDAC6) with an IC50 of 7.5 nM.

In vitro activity

The HDAC6 inhibitors, ACY-738 and ACY-775, hyperacetylated α-tubulin at a concentration of 1 μM. The histone acetylation was not affected (Fig. 1a–c). Immunocytochemistry was used to visualize the acetylation of α-tubulin, which is present in the cytoplasm, and of histone 3, visible in the nucleus. In vehicle-treated cells, α-tubulin was mainly present in the deacetylated form, while histone 3 was clearly acetylated (Fig. 1a, d). Upon treatment with ACY-738 and ACY-775, a clear enhancement of the acetylation of α-tubulin was visible, while histone acetylation remained unaltered (Fig. 1f–g).

Reference: Neurotherapeutics. 2017 Apr; 14(2): 417–428. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5398982/

In vivo activity

When ACY-775 (50 mg/kg) was administered repeatedly in wild-type mice at 24 h, 4 h, and 30 min before killing, significant increases in α-tubulin acetylation were observed in all tested brain regions (Figure 2c): cortex, $F_{2,7}=582.5$, $P<0.0001$; hippocampus, $F_{2,7}=260.4$, $P<0.0001$; DRN, $F_{2,7}=54.00$, $P<0.0001$; and cerebellum, $F_{2,7}=136.2$, $P<0.0001$. In contrast, an identical treatment regimen in KO mice did not produce increases in α-tubulin acetylation over baseline levels (Figure 2c).

Reference: Neuropsychopharmacology. 2014 Jan; 39(2): 389–400. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3870780/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.