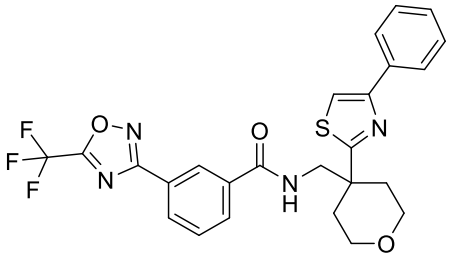
Product data sheet

MedKoo Cat#: 406285 Name: TMP269 CAS#: 1314890-29-3 Chemical Formula: $C_{25}H_{21}F_3N_4O_3S$ Exact Mass: 514.12865 Molecular Weight: 514.52	
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:
TMP269 is a highly potent, selective and cell-permeable class IIa HDAC inhibitor with IC50 of 126 nM, 80 nM, 36 nM and 19 nM for HDAC4, HDAC5, HDAC7 and HDAC9 respectively.

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
DMF	25.0	48.6
DMSO	10.0	19.4
Ethanol	0.25	0.5

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	1.94 mL	9.72 mL	19.44 mL
5 mM	0.39 mL	1.94 mL	3.89 mL
10 mM	0.19 mL	0.97 mL	1.94 mL
50 mM	0.04 mL	0.19 mL	0.39 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. Sinnett-Smith J, Ni Y, Wang J, Ming M, Young SH, Rozengurt E. Protein kinase D1 mediates class IIa histone deacetylase phosphorylation and nuclear extrusion in intestinal epithelial cells: role in mitogenic signaling. Am J Physiol Cell Physiol. 2014 May 15;306(10):C961-71. doi: 10.1152/ajpcell.00048.2014. Epub 2014 Mar 19. PMID: 24647541; PMCID: PMC4024715.

2. Kikuchi S, Suzuki R, Ohguchi H, Yoshida Y, Lu D, Cottini F, Jakubikova J, Bianchi G, Harada T, Gorgun G, Tai YT, Richardson PG, Hideshima T, Anderson KC. Class IIa HDAC inhibition enhances ER stress-mediated cell death in multiple myeloma. Leukemia. 2015 Sep;29(9):1918-27. doi: 10.1038/leu.2015.83. Epub 2015 Mar 24. PMID: 25801913.

In vivo study

1. Su L, Liang D, Kuang SY, Dong Q, Han X, Wang Z. Neuroprotective mechanism of TMP269, a selective class IIA histone deacetylase inhibitor, after cerebral ischemia/reperfusion injury. Neural Regen Res. 2020 Feb;15(2):277-284. doi: 10.4103/1673-5374.265562. PMID: 31552900; PMCID: PMC6905324.

7. Bioactivity
Biological target:

Product data sheet

TMP269 is a potent, selective class IIa HDAC inhibitor with IC50 of 157 nM, 97 nM, 43 nM and 23 nM for HDAC4, HDAC5, HDAC7 and HDAC9, respectively.

In vitro activity

Exposure of IEC-18 cells to increasing concentrations of TMP269 potently inhibited [3H]thymidine incorporation induced by ANG II in these cells. Half-maximal inhibitory effect was elicited at ~1.5 μM (Fig. 6B). Confluent and serum-starved cultures of IEC-18 cells were stimulated with ANG II in the absence or presence of 4 μM TMP269. Cells that traversed the cell cycle were accumulated in the G2/M phase by addition of colchicine. As shown in Fig. 6C, stimulation of IEC-18 cells with ANG II induced a striking shift from the G0/G1 to the G2/M phase, an effect completely prevented by exposure to TMP269. Furthermore, the inhibitors of class IIa HDACs also abolished the increase in cell number induced by ANG II in IEC-18 cells (Fig. 6D). Collectively, the results demonstrate, for the first time, that pharmacological inhibition of class IIa HDAC activity completely prevented GPCR/PKD1-induced progression of the cell cycle, DNA synthesis, and proliferation in IEC-18 cells.

Reference: Am J Physiol Cell Physiol. 2014 May 15;306(10):C961-71. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/24647541/

In vivo activity

Male Sprague-Dawley rats were randomly divided into sham, ischemia/reperfusion, and 1, 4, 10 and 16 mg/kg TMP269 groups. Cerebral ischemia/reperfusion injury was induced by middle cerebral artery occlusion. TMP269 was intraperitoneally administered at different doses 0.5 hours before ischemia induction. Western blot assay and immunohistochemistry were used to detect effects of TMP269 on histone 2 acetylation. The results showed that the level of histone 2 acetylation was increased 24 hours after TMP269 injection. 2,3,5-Triphenyltetrazolium chloride staining was utilized to examine effect of TMP269 on infarct volume. The results found that different doses of TMP269 could reduce the infarct volume. Western blot assay, immunohistochemistry and Evans blue staining were employed to measure the effect of TMP269 on blood-brain barrier. The results showed that TMP269 counteracted the abnormal endothelial cell permeability changes caused by cerebral ischemia/reperfusion. Western blot assay and immunohistochemistry were used to determine the effect of TMP269 on tissue kallikrein. The results found that TMP269 up-regulated the expression of tissue kallikrein. Western blot assay further determined the optimal concentration to be 4 mg/kg. In conclusion, TMP269 plays a neuroprotective role by up-regulating the level of histone 2 acetylation, alleviating endothelial cell injury after cerebral ischemia/reperfusion, and up-regulating the expression of tissue kallikrein.

Reference: Neural Regen Res. 2020 Feb;15(2):277-284. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/31552900/

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.