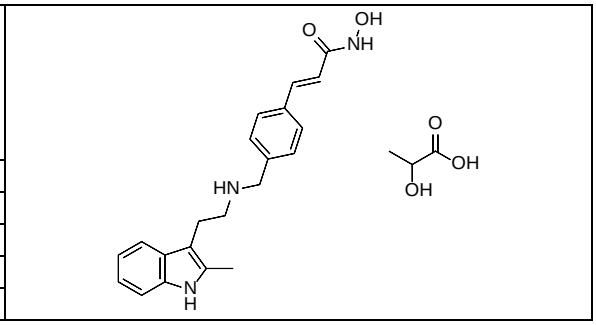
Product data sheet

MedKoo Cat#: 330235 Name: Panobinostat lactate CAS: 960055-56-5 (lactate) Chemical Formula: $C_{24}H_{29}N_3O_5$ Molecular Weight: 439.512	
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:

Panobinostat, also known as NVP LBH-589 or LBH-589, is a cinnamic hydroxamic acid analogue with potential antineoplastic activity. Panobinostat selectively inhibits histone deacetylase (HDAC), inducing hyperacetylation of core histone proteins, which may result in modulation of cell cycle protein expression, cell cycle arrest in the G2/M phase and apoptosis. In addition, this agent appears to modulate the expression of angiogenesis-related genes, such as hypoxia-inducible factor-1alpha (HIF-1a) and vascular endothelial growth factor (VEGF), thus impairing endothelial cell chemotaxis and invasion.

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
TBD	TBD	TBD

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.28 mL	11.38 mL	22.75 mL
5 mM	0.46 mL	2.28 mL	4.55 mL
10 mM	0.23 mL	1.14 mL	2.28 mL
50 mM	0.05 mL	0.23 mL	0.46 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. Tagoug A, Safra I. The Impact of Panobinostat on Cell Death in Combination with S63845 in Multiple Myeloma Cells. Indian J Hematol Blood Transfus. 2023 Apr;39(2):245-257. doi: 10.1007/s12288-022-01584-4. Epub 2023 Jan 2. PMID: 37006981; PMCID: PMC10064410.
2. Scuto A, Kirschbaum M, Kowolik C, Kretzner L, Juhasz A, Atadja P, Pullarkat V, Bhatia R, Forman S, Yen Y, Jove R. The novel histone deacetylase inhibitor, LBH589, induces expression of DNA damage response genes and apoptosis in Ph- acute lymphoblastic leukemia cells. Blood. 2008 May 15;111(10):5093-100. doi: 10.1182/blood-2007-10-117762. Epub 2008 Mar 18. PMID: 18349321; PMCID: PMC2384136.

In vivo study

1. Ocio EM, Vilanova D, Atadja P, Maiso P, Crusoe E, Fernández-Lázaro D, Garayoa M, San-Segundo L, Hernández-Iglesias T, de Alava E, Shao W, Yao YM, Pandiella A, San-Miguel JF. In vitro and in vivo rationale for the triple combination of panobinostat (LBH589) and dexamethasone with either bortezomib or lenalidomide in multiple myeloma. Haematologica. 2010 May;95(5):794-803. doi: 10.3324/haematol.2009.015495. Epub 2009 Nov 30. PMID: 19951978; PMCID: PMC2864386.
2. Crisanti MC, Wallace AF, Kapoor V, Vandermeers F, Dowling ML, Pereira LP, Coleman K, Campling BG, Fridlender ZG, Kao GD, Albelda SM. The HDAC inhibitor panobinostat (LBH589) inhibits mesothelioma and lung cancer cells in vitro and in vivo with

particular efficacy for small cell lung cancer. Mol Cancer Ther. 2009 Aug;8(8):2221-31. doi: 10.1158/1535-7163.MCT-09-0138. Epub 2009 Aug 11. PMID: 19671764; PMCID: PMC3605895.

7. Bioactivity

Biological target:

Panobinostat lactate is a potent and orally active non-selective HDAC inhibitor.

In vitro activity

Two model human Ph(-) ALL cell lines (T-cell MOLT-4 and pre-B-cell Reh) were treated with LBH589 and evaluated for biologic and gene expression responses. Low nanomolar concentrations (IC(50): 5-20 nM) of LBH589 induced cell-cycle arrest, apoptosis, and histone (H3K9 and H4K8) hyperacetylation. LBH589 treatment increased mRNA levels of proapoptosis, growth arrest, and DNA damage repair genes including FANCG, FOXO3A, GADD45A, GADD45B, and GADD45G. The most dramatically expressed gene (up to 45-fold induction) observed after treatment with LBH589 is GADD45G. LBH589 treatment was associated with increased histone acetylation at the GADD45G promoter and phosphorylation of histone H2A.X.

Reference: Blood. 2008 May 15;111(10):5093-100. https://pubmed.ncbi.nlm.nih.gov/18349321/

In vivo activity

In lung cancer and mesothelioma animal models, panobinostat significantly decreased tumor growth by an average of 62% when compared with vehicle control. Panobinostat was equally effective in immunocompetent and severe combined immunodeficiency mice, indicating that the inhibition of tumor growth by panobinostat was not due to direct immunologic effects. Panobinostat was, however, particularly effective in SCLC xenografts, and the addition of the chemotherapy agent etoposide augmented antitumor effects.

Reference: Mol Cancer Ther. 2009 Aug;8(8):2221-31. https://pubmed.ncbi.nlm.nih.gov/19671764/

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.