Panobinostat (LBH589) Datasheet

### Biological Activity

**In vitro**
- LBH589 induces apoptosis among MOLT-4 and Reh cells in a time- and dose-dependent manner. Moreover, LBH589 is more potent in MOLT-4 than in Reh cells. LBH589 markedly prevents the growth of both MOLT-4 and Reh cells in a dose-dependent manner at 48 hours. LBH589 treatment causes a 2- to 3-fold increase in the number of cells in the G2/M phase of the cell cycle compared with the control cells. LBH589 is associated with induction of histone H3K9 and histone H4K8 acetylation as well as decreasing levels of c-Myc expression in a dose-dependent manner. LBH589 treatment also increases the levels of p21 expression. LBH589 treatment also decreases the levels of c-Myc after an initial increase at the lowest dose (10 nM) in Reh cells. In addition, LBH589 gives rise to substantial increases in mRNA levels of proapoptosis and DNA repair genes. LBH589 induces increased levels of acetylated histone H3 and H4 at the GADD45G promoter. 
- Besides, LBH589 inhibits growth of non small cell lung cancer cell lines (such as human H1299, L55 and A549 with IC50 of 5 nM, 11 nM and 30 nM, respectively), mesothelioma (such as human OK-6 and Ok-5 with IC50 of 5 nM and 7 nM, respectively) and small cell lung cancer cell lines (such as human RG-1 and LD-T with IC50 of 4 nM and 5 nM, respectively).

**In vivo**
- In lung cancer and mesothelioma animal models, LBH589 markedly decreases tumor growth by 62%. LBH589 is equally effective in immunocompetent and severe combined immunodeficient-mice, suggesting that the inhibition of tumor growth by LBH589 is not due to direct immunologic effects. Daily LBH589, given i.p. at 20 mg/kg for 5 days per week, leading to an average decrease in growth of 70%. Compared with the corresponding control tumors, LBH589 leads to a 53% decrease for H526-derived tumors, an 81% decrease for BK-T-derived tumors, a 76% decrease for KG-1-derived tumors, and a 70% decrease for H69-derived tumors. In contrast to the lack of tumor regression notes in NSCLC and Meso-derived xenografted tumors that are treated under identical conditions and doses, LBH589 results in dramatic tumor regression in SCLC-derived tumors and RG-1-derived tumor.

**Clinical Trials**
- Combined with bortezomib, LBH589 is currently in Phase III clinical trial for the treatment of patients with relapsed multiple myeloma.

**Features**
- Combined with bortezomib, LBH589 is currently in Phase III clinical trial for the treatment of patients with relapsed multiple myeloma.

### Protocol

**Cell Lines**: MOLT-4 cell lines and Reh (pre-B cells)

**Concentrations**: 50 nM

**Incubation Time**: 48 hours

**Methods**: Untreated and LBH589-treated cells [human Ph- acute lymphoblastic leukemia MOLT-4 (T cells) and Reh (pre-B cells)] are stained with annexin V and propidium iodide using annexin V-FITC apoptosis detection kit I. The percentage of apoptotic and nonviable cells is determined by flow cytometry. At least $5 \times 10^4$ cells are collected with a CyAn ADP. Violet flowmeter. Percentage apoptosis is calculated considering all the annexin V-positive plus the annexin PI-positive cells; percentage loss of cell viability is calculated considering all the annexin V-positive plus the PI-positive and the annexin/PI-positive cells.

**Animal Study**
-**Animal Models**: Severe combined immunodeficiency (SCID) mice with M10 (10×10^6 cells) or A649 (5×10^6 cells)
-**Formulation**: Dextrose 5% in water
-**Doses**: 10 mg/kg, 20 mg/kg
-**Administration**: Administered via i.p. injection

### Technical Data

**Molecular Weight (MW)**: 349.43 g/mol

**Formula**: C_{12}H_{16}N_{2}O_{2}

**CAS No.**: 404950-80-7, 960055-57-6 (Maleic acid), 960055-60-1 (methanesulfonate)

**Synonyms**: N/A

**Solubility (25°C)**
- DMOSO 70 mg/mL
- Water <1 mg/mL
- Ethanol <1 mg/mL

**Storage**
- 2 years -20°C Powder
- 2 weeks 4°C in DMOSO
- 6 months -80°C in DMOSO

**Return Policy**
Selleck Chemicals wishes you the best possible online shopping experience with our 365 day unconditional Return Policy. If you are not satisfied with your purchase, either for protocol related or product related problems, you may return any item(s) within 365 days from the original purchase date. Please see the following instructions when you return products.

1. All requests for returns should be communicated to Selleck Chemicals prior to shipping. Any items returned to Selleck Chemicals should be in the original packaging and in the same condition as originally purchased.
2. When returning purchased goods, please inform us of the purchase order number or package tracking number.
3. Return shipping is absolutely FREE.
4. This offer is only valid for products purchased directly from Selleck and its authorized distributors.
5. Once your return request is received and approved, your refund will be processed or automatically applied to your credit card within 7 days. Please note that depending on your credit card company, it may take additional 2-10 business days for us to post the refund to your account.

**Toll Free**: (877) 796-6397
-- USA and Canada only--

**Fax**: +1-713-796-9816

**Orders**: +1-832-582-8158
sales@selleckchem.com

**Tech Support**: tech@selleckchem.com
(chemistry support)
techbio@selleckchem.com
(biology support)

**Website**: www.selleckchem.com
References

Customer Reviews

Data from [Breast Cancer Res Treat., 2010, 124(3), 667-675]
Panobinostat (LBH589) purchased from Selleck
Inhibition of LSD1 activity by HDAC inhibitors. a
MDA-MB-231 and MDA-MB-468 cells were exposed
to indicated HDAC inhibitors for 24 h.

Data from [PLoS ONE, 2011, 6, e17138]
Panobinostat (LBH589) purchased from Selleck
Induction of DNA Damage and Bim Is Critical for
HDACI-Induced Apoptosis in Pediatric AML Cells.
THP-1 cells were treated with the HDACIs at Cmax
concentrations for 3 (panel A) and 24 h (panel B),
respectively. Whole cell lysates were extracted and
subjected to Western blots probed by anti-p21, -c-Myc,
-pH2AX, -Bim, or -b-actin antibody.

PLEASE KEEP THE PRODUCT UNDER -20°C FOR LONG-TERM STORAGE.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE

Specific storage and handling information for each product is indicated on the product datasheet. Most Selleck products are stable under
the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature.
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, but save your shipping charges by using the most economical storage conditions for
an overnight shipment. Upon receipt of the product, follow the storage recommendations on the product datasheet.