CAY10603

Cat. No.: HY-18613

CAS No.: 1045792-66-2

Molecular Formula: $C_{22}H_{30}N_4O_6$

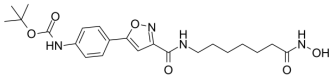
Molecular Weight: 446.5

Target: HDAC

Pathway: Cell Cycle/DNA Damage; Epigenetics

Storage:

Powder	-20°C	3 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 50 mg/mL (111.98 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	2.2396 mL	11.1982 mL	22.3964 mL
5 mM	0.4479 mL	2.2396 mL	4.4793 mL
10 mM	0.2240 mL	1.1198 mL	2.2396 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 50% PEG300 >> 50% saline
   Solubility: 5 mg/mL (11.20 mM); Suspended solution; Need ultrasonic and warming and heat to 42°C
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (5.60 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.60 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.60 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

CAY10603 (BML-281) is a potent and selective HDAC6 inhibitor, with an IC_{50} of 2 pM; CAY10603 (BML-281) also inhibits HDAC1, HDAC2, HDAC3, HDAC8, HDAC10, with IC_{50}s of 271, 252, 0.42, 6851, 90.7 nM.

IC_{50} & Target

HDAC6	HDAC3	HDAC10	HDAC2
0.002 nM (IC_{50})	0.42 nM (IC_{50})	90.7 nM (IC_{50})	252 nM (IC_{50})

	HDAC1 271 nM (IC_{50})	HDAC8 6851 nM (IC_{50})

In Vitro

CAY10603 (Compound 7) shows potent inhibitory activities against pancreatic cancer cell lines, with IC_{50}s of 1, 0.3, 0.1, 0.1, 0.6, <1, 0.5 μM for BxPC-3, HupT3, Mia Paca-2, Panc 04.03, SU.86.86, HMEC, HPDE6c7, respectively. CAY10603 (100 nM, 200-300 nM) is active against both the Mia Paca-2 and Panc04.03 cell lines[1]. CAY10603 inhibits HDAC6 deacetylase activity, and supresses the proliferation of lung adenocarcinoma cells. CAY10603 also induces apoptosis of lung adenocarcinoma cells. Furthermore, CAY10603 synergizes with gefitinib to induce apoptosis in lung adenocarcinoma cell lines, partly through the destabilization of EGFR and inactivation of the EGFR pathway[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Kinase Assay [1]

Purified HDACs are incubated with 1 mm carboxyfluorescein (FAM)-labeled acetylated peptide substrate and test compound for 17 h at 25°C in HDAC assay buffer containing 100 mm HEPES (pH 7.5), 25 mm KCl, 0.1% BSA, and 0.01% Triton X-100. Reactions are terminated by the addition of buffer containing 0.078% SDS for a final SDS concentration of 0.05%. Substrate and product are separated electrophoretically using a Caliper LabChip 3000 system with blue laser excitation and green fluorescence detection (CCD2). The fluorescence intensity in the substrate and product peaks is determined using the Well Analyzer software on the Caliper system. The reactions are performed in duplicate for each sample. IC_{50} values are automatically calculated using the IDBS XLFit version 4.2.1 plug-in for Microsoft Excel and the XLFit 4-Parameter Logistic Model (sigmoidal dose-response model): ((A+ ((B_A)/1+((C/x)D)))), in which x is compound concentration, A and B are respectively the estimated minimum and maximum of percent inhibition, C is the inflection point, and D is the Hill slope of the sigmoidal curve.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Assay [1]

The pancreatic cancer cell lines BxPc-3, HupT3, Mia Paca-2, Panc 04.03, and SU 86.86 are obtained from ATCC and are grown in medium (DMEM or RPMI) containing 10% fetal calf serum and l-glutamine. Pancreatic cancer cells are plated out in duplicate into 6 wells of a 96-well microtiter plate at 2.5-4P103 cells per well. Four hours post plating, individual wells are treated with diluent (DMSO) or varying concentrations of SAHA or the indicated HDACIs from a concentration of 1 nm to 50 mm. Cytotoxicity is measured at time “0”, and 72 h post treatment using the colorimetric MTT assay. The IC_{50} values are calculated using XLfit.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Clin Transl Med. 15 September 2021.
- Cancer Cell Int. 2021 Jun 5;21(1):291.
- Patent. US20180263995A1.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Kozikowski AP, et al. Use of the nitrile oxide cycloaddition (NOC) reaction for molecular probe generation: a new class of enzyme selective histone deacetylase inhibitors (HDACIs) showing picomolar activity at HDAC6. J Med Chem. 2008 Aug 14;51(15):4370-3.

[2]. Wang Z, et al. HDAC6 promotes cell proliferation and confers resistance to gefitinib in lung adenocarcinoma. Oncol Rep. 2016 Jul;36(1):589-97.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA