ASP3026

Cat. No.: HY-13326

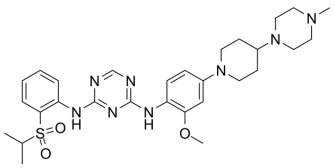
CAS No.: 1097917-15-1

Molecular Formula: $C_{29}H_{40}N_8O_3S$

Molecular Weight: 580.74

Target: Anaplastic lymphoma kinase (ALK); Apoptosis; ROS Kinase; Caspase; PARP; IGF-1R; STAT; Akt; JNK

Pathway: Protein Tyrosine Kinase/RTK; Apoptosis; Cell Cycle/DNA Damage; Epigenetics; JAK/STAT Signaling; Stem Cell/Wnt; PI3K/Akt/mTOR; MAPK/ERK Pathway



Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year

SOLVENT & SOLUBILITY

In Vitro

DMSO : 20 mg/mL (34.44 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.7219 mL	8.6097 mL	17.2194 mL
	5 mM	0.3444 mL	1.7219 mL	3.4439 mL
	10 mM	0.1722 mL	0.8610 mL	1.7219 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2 mg/mL (3.44 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2 mg/mL (3.44 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2 mg/mL (3.44 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

ASP3026 is a selective and orally active inhibitor of anaplastic lymphoma kinase (ALK). ASP3026 is a selective and oral active anaplastic lymphoma kinase (ALK) inhibitor with a IC_{50} value of 3.5 nM. ASP3026 can inhibit the phosphorylation of IGF-1R, STAT3, AKT and JNK proteins, and induce the cleavage of caspase 3 and PARP. It also inhibited ROS and ACK. ASP3026 can be used in anti-tumor research[1][2][3][4].

IC_{50} & Target	ROS	ACK	Caspase-3	PARP1
	IGF-1R	STAT3		

In Vitro

ASP3026 decreases the viability, proliferation, and colony formation, as well as induced apoptotic cell death of NPM-ALK+ ALCL cells[2].
ASP3026 significantly reduces the proliferation of 293T cells transfected with NPM-ALK mutants that are resistant to Crizotinib (HY-50878) and downregulates tyrosine phosphorylation of these mutants[2].
ASP3026 (1-4 μg/ml, 48 h) is a novel inhibitor of red blood cell membrane scrambling following energy depletion and oxidative stress, thereby counterbalancing suicidal red blood cell death and subsequent development of anemia[3].
ASP3026 (100 nM, 1000 nM, 5 days) inhibits ALK activity in a competitive manner with ATP, and its inhibition profile is different from that of the dual ALK/MET inhibitor Crizotinib (HY-50878)[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[2]

Cell Line:	NPM-ALK$^+$ ALCL cell, 50-80 μg total proteins
Concentration:	0.1-2.5 μM
Incubation Time:	24-72 h
Result:	Significantly decreased the activity of NPM-ALK tyrosine kinase and the tyrosine phosphorylation levels at Y646 and Y664, and decreased the phosphorylation levels of IGF-IR, STAT3, AKT and JNK proteins, the target proteins of NPM-ALK signal transduction. Successfully induced the cleavage of caspase 3 and PARP, which further indicated that it induced the apoptosis of NPM-ALK$^+$ ALCL cells.

Cell Viability Assay[2]

Cell Line:	NPM-ALK+ T-cell ALCL cell lines Karpas 299, SU-DHL-1, SUP-M2, SR-786, DEL
Concentration:	0.1-2.5 μM
Incubation Time:	24-72 h
Result:	At 48 h, the IC_{50} values of SU-DHL-1, SUP-M2, SR-786, Karpas 299 and DEL were 0.4 μM, 0.75 μM, 1.0 μM, 2.5 μM and greater than 3.0 μM, respectively. Significantly reduced the viability of lymphoma cells than that of T lymphocytes. At 72 h, the IC_{50} values of SU-DHL-1, SUP-M2, SR-786, Karpas 299 and DEL were 0.3 μM, 0.75 μM, 0.75 μM, 2.5 μM and 0.5 μM, respectively.

Cell Proliferation Assay[4]

Cell Line:	NCI-H2228 NSCLC
Concentration:	100 nM, 1000 nM
Incubation Time:	5 days
Result:	Inhibited the growth of ALK-dependent cells. Inhibited the growth of NCI-H2228 cells with an IC_{50} value of 64.8 nM.

In Vivo

ASP3026 (30 mg/kg daily for 10 weeks, p.o.) inhibits the growth of NPM-ALK$^+$ ALCL tumor cells in mice[2].
ASP3026 (10 mg/kg daily for 5 days, p.o.) can enhance the antitumor activity of Paclitaxel (HY-B0015) and Pemetrexed (HY-10820). When used alone, it can induce tumor regression and prolong survival in non-small cell lung cancer model mice, and does not affect the body weight of non-small cell lung cancer model mice[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Female C.B-17 SCID mice of systemic xenograft lymphoma model[2]
Dosage:	30 mg/kg daily for 10 weeks
Administration:	p.o.
Result:	Mice in the ASP3026-interrupted group developed recurrent lymphoma, were subsequently treated with ASP3026 and survived until the end of the study.

CUSTOMER VALIDATION

- Science. 2017 Dec 1;358(6367):eaan4368.
- Sci Transl Med. 2018 Jul 18;10(450):eaaq1093.
- Technical University of Munich. 24.01.2018.
- Cell Physiol Biochem. 2017;43(2):507-517.
- Harvard Medical School LINCS LIBRARY

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Mori M, et al. The selective anaplastic lymphoma receptor tyrosine kinase inhibitor ASP3026 induces tumor regression and prolongs survival in non-small cell lung cancer model mice. Mol Cancer Ther. 2014 Feb;13(2):329-40.

[2]. Discovery of Iikubo K, et, al. N-{2-Methoxy-4-[4-(4-methylpiperazin-1-yl)piperidin-1-yl]phenyl}-N'-[2-(propane-2-sulfonyl)phenyl]-1,3,5-triazine-2,4-diamine (ASP3026), a Potent and Selective Anaplastic Lymphoma Kinase (ALK) Inhibitor. Chem Pharm Bull (Tokyo). 2018;66(3):251-262.

[3]. George SK, et, al. The ALK inhibitor ASP3026 eradicates NPM-ALK T-cell anaplastic large-cell lymphoma in vitro and in a systemic xenograft lymphoma model. Oncotarget. 2014 Jul 30;5(14):5750-63.

[4]. Bhuyan AAM, et, al. Inhibition of Erythrocyte Cell Membrane Scrambling by ASP3026. Cell Physiol Biochem. 2017;43(2):507-517.

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