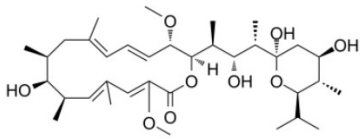
FT-AX4C51

Bafilomycin A1

Macrolide antibiotic isolated from the Streptomyces species, is a specific inhibitor of vacuolar-type H^+ ATPase (V-ATPase). Bafilomycin A1 inhibits autophagy.

Product Description



Catalog #: AX4C51, 100 µg
Name: **Bafilomycin A1**
Purity : >99%
CAS: [88899-55-2]
MW: 622.83
$C_{35}H_{58}O_9$
Target : H^+ ATPase

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

Technical and Scientific Information

In Vitro

DMSO : 100 mg/mL (160.56 mM; Need ultrasonic)
H_2O : < 0.1 mg/mL (insoluble)

Bafilomycin A1 at a low concentration (1 nM) effectively and specifically inhibits and kills pediatric B-cell acute lymphoblastic leukemia cells. It targets both early and late stages of the autophagy pathway, mitochondria and induces caspase-independent apoptosis. Bafilomycin A1 induces the binding of Beclin 1 to Bcl-2, which further inhibits autophagy and promotes apoptotic cell death[1]. The growth of the BEL-7402 hepatocellular carcinoma and HO-8910 ovarian cancer cell lines are retarded and the metastatic potential is inhibited by Bafilomycin A1. Transmission electron microscopy and assays of capsase-3 and -9 suggest that Bafilomycin A1 induces apoptosis[2]. Bafilomycin A1 inhibits the growth of a variety of cultured cells dose-dependently, including golden hamster embryo and NIH-3T3 fibroblasts, whether or not they are transformed, and PC12 and HeLa cells. The IC50 of Bafilomycin A1 for inhibition of cell growth ranges from 10 to 50 nM[3].

In Vivo

1. Add each solvent one by one: 10% DMSO 40% PEG300 5% Tween-80 45% saline
   Solubility: ≥ 2.5 mg/mL (4.01 mM); Clear solution
2. Add each solvent one by one: 10% DMSO 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (4.01 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.01 mM); Clear solution

FT-AX4C51
Chronic treatment with low-dose Bafilomycin A1 (0.1 mg/kg) slightly inhibits the tumor volume, but the final tumor volume does not differ significantly from the control. However, chronic treatment with high dose Bafilomycin A1 (1 mg/kg) inhibits the tumor growth significantly, compared with controls, after 21 days[4].

Protocol

Cell Assay

Cells are harvested using 0.05% trypsin and suspended in culture medium containing 10% FCS, and 200 µL suspension is added to each well of a 96-well plate. Cells are cultured for 20 h for adhesion. Bafilomycin A1 is added to the wells at the final concentrations of 200, 400 and 800 nM, in triplicate. At 24, 48 and 72 h, 20 µl WST-1 is added to the cells. Following incubation at 37°C for 4 h, the plates are read to determine the optical density (OD) at 435 nm with 675 nm reference using a spectrophotometer[2].

Animal Administration

Mice: Tumor-bearing mice are divided randomly into three experimental groups: a low-dose Bafilomycin A1 (0.1 mg/kg per day)-treated group (n=5), a high-dose Bafilomycin A1 (1 mg/kg per day)-treated group (n=5),and a control group (n=5). Tumor size is measured and tumor volume doubling time is calculated[4].

References

[1]. Yuan N, et al. Bafilomycin A1 targets both autophagy and apoptosis pathways in pediatric B-cell acute lymphoblastic leukemia. Haematologica. 2015 Mar;100(3):345-56.
[2]. Lu X, et al. Bafilomycin A1 inhibits the growth and metastatic potential of the BEL-7402 liver cancer and HO-8910 ovarian cancer cell lines and induces alterations in their microRNA expression. Exp Ther Med. 2015 Nov;10(5):1829-1834.
[3]. Ohkuma S, et al. Inhibition of cell growth by bafilomycin A1, a selective inhibitor of vacuolar H(+)-ATPase. In Vitro Cell Dev Biol Anim. 1993 Nov;29A(11):862-6.
[4]. Ohta T, et al. Bafilomycin A1 induces apoptosis in the human pancreatic cancer cell line Capan-1. J Pathol. 1998 Jul;185(3):324-30.

Ordering information

Catalog size quantities and prices may be found at http://www.interchim.com.
Please inquire for higher quantities (availability, shipment conditions).
Please contact InterBioTech – Interchim for any other information
Hotline : +33(0)4 70 03 73 06 – Interbiotech@interchim.com

LIFE SCIENCES
interchim 211 bis, avenue JF Kennedy BP 1140 - 03100 Montluçon Fax +33 4 70 03 82 60 Hotline +33 4 70 03 73 06 • interbiotech@interchim.com