Brefeldin A

Cat. No.: HY-16592

CAS No.: 20350-15-6

Molecular Formula: $C_{16}H_{24}O_4$

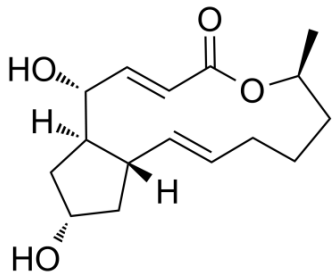
Molecular Weight: 280.36

Target: Autophagy; CRISPR/Cas9; Mitophagy; HSV; Antibiotic

Pathway: Autophagy; Cell Cycle/DNA Damage; Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

Ethanol : 33.33 mg/mL (**118.88 mM;** Need ultrasonic)
DMSO : 20.83 mg/mL (**74.30 mM;** Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.5668 mL	17.8342 mL	35.6684 mL
	5 mM	0.7134 mL	3.5668 mL	7.1337 mL
	10 mM	0.3567 mL	1.7834 mL	3.5668 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: ≥ 2.08 mg/mL (7.42 mM); Clear solution
2. Add each solvent one by one: **10% DMSO >> 90% (20% SBE-β-CD in saline)**
   Solubility: ≥ 2.08 mg/mL (7.42 mM); Clear solution
3. Add each solvent one by one: **10% DMSO >> 90% corn oil**
   Solubility: ≥ 2.08 mg/mL (7.42 mM); Clear solution
4. Add each solvent one by one: **10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline**
   Solubility: ≥ 2.5 mg/mL (8.92 mM); Clear solution
5. Add each solvent one by one: **10% EtOH >> 90% (20% SBE-β-CD in saline)**
   Solubility: ≥ 2.5 mg/mL (8.92 mM); Clear solution
6. Add each solvent one by one: **10% EtOH >> 90% corn oil**
   Solubility: ≥ 2.5 mg/mL (8.92 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Brefeldin A (BFA) is a lactone antibiotic and a specific inhibitor of **protein trafficking**. Brefeldin A blocks the transport of secreted and membrane proteins from endoplasmic reticulum to Golgi apparatus[1][2]. Brefeldin A is also an **autophagy** and **mitophagy** inhibitor[3]. Brefeldin A is a **CRISPR/Cas9** activator[5]. Brefeldin A inhibits **HSV-1** and has anti-cancer activity[5].	
IC_{50} & Target	CRISPR/Cas9	HSV-1
In Vitro	Brefeldin A (BFA) treatment for 15 h or 40 h, causes dramatic swelling of the Endoplasmic Reticulum (ER) and shifts its localization to the periphery of normal rat kidney (NRK) cells. Prolonged Brefeldin A treatment results in marked disruption of the MT and actin cytoskeleton[1]. ADP-ribosylation of BARS is mediated by formation of a conjugate between Brefeldin A and ADPR. BARS shows BAC binding when incubated with the medium from the BFA-treated $CD38^+$ HeLa cells[3]. Brefeldin A induces anchorage-independent cell death in MDA-MB-231 breast cancer cells, inhibits the formation of MDA-MB-231 colonies in 3D and 2D cultures and inhibits the migration and MMP 9 (Matrix Metallopeptidase 9) activity of MDA-MB-231[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.	

PROTOCOL

Cell Assay [1]	Cells are grown on glass coverslips, fixed in 3 % paraformaldehyde in PBS (10 min at room temperature) and then washed in PBS. Cells are permeabilized with 0.01 % Triton X-lOO in PBS at room temperature for 7 min. The coverslips are washed (3 times in PBS/0.2 % Tween) incubated in PBS/O.4 % fish skin gelatin/0.2 % Tween (5 min) and in PBS/2.5 % goat serum/0.2 % Tween (5 min.). After blocking, the cells are incubated with primary antibodies for 45 min at 37°C, and then washed with PBS/0.2 % Tween (5 times, 5 min each). The secondary antibodies are added for 30 min at 37°C and then cells are washed as above. Coverslips are mounted on slides in 9: 1 glycerol/PBS with 0.1 % o-phenylenediamine. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- **Cancer Res**. 2020 Jun 26;canres.2691.2019.
- **J Autoimmun**. 2019 May;99:39-47.
- **Cell Death Dis**. 2018 Nov 16;9(12):1143.
- **PLoS Pathog**. 2020 Oct 19;16(10):e1008947.
- **Int J Nanomedicine**. 2018 Jan 22;13:479-492.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Alvarez C, et al. Brefeldin A (BFA) disrupts the organization of the microtubule and the actin cytoskeletons. Eur J Cell Biol. 1999 Jan;78(1):1-14.

[2]. Colanzi A, et al. Molecular mechanism and functional role of brefeldin A-mediated ADP-ribosylation of CtBP1/BARS. Proc Natl Acad Sci U S A. 2013 Jun 11;110(24):9794-9.

[3]. Tseng CN, et al. Brefeldin A reduces anchorage-independent survival, cancer stem cell potential and migration of MDA-MB-231 human breast cancer

cells. Molecules. 2014 Oct 29;19(11):17464-77.

[4]. Wang J, et al. Erythroleukemia cells acquire an alternative mitophagy capability. Sci Rep. 2016 Apr 19;6:24641.

[5]. Yu C, et al. Small molecules enhance CRISPR genome editing in pluripotent stem cells. Cell Stem Cell. 2015 Feb 5;16(2):142-7.

[6]. Nozawa N, et al. Subcellular localization of herpes simplex virus type 1 UL51 protein and role of palmitoylation in Golgi apparatus targeting. J Virol. 2003 Mar;77(5):3204-16.

[7]. Jensen HL, Rygaard J, Norrild B. A time-related study of Brefeldin A effects in HSV-1 infected cultured human fibroblasts. APMIS. 1995;103(7-8):530-539. doi:10.1111/j.1699-0463.1995.tb01402.x

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