(-)-Blebbistatin

Cat. No.: HY-13441

CAS No.: 856925-71-8

Molecular Formula: $C_{18}H_{16}N_2O_2$

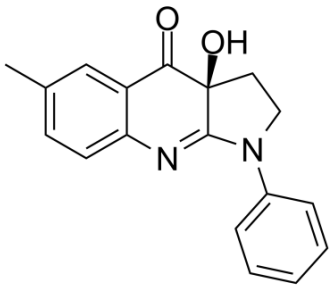
Molecular Weight: 292.33

Target: Myosin

Pathway: Cytoskeleton

Storage: 4°C, stored under nitrogen

* The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro

DMSO : 10 mg/mL (34.21 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.4208 mL	17.1040 mL	34.2079 mL
5 mM	0.6842 mL	3.4208 mL	6.8416 mL
10 mM	0.3421 mL	1.7104 mL	3.4208 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: ≥ 1 mg/mL (3.42 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 1 mg/mL (3.42 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1 mg/mL (3.42 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

(-)-Blebbistatin is a selective inhibitor of the ATPase activity of non-muscle myosin II[1][2].

IC_{50} & Target

IC50: 0.5 to 5 μM (myosin II)[1]

In Vitro

Blebbistatin potently inhibits several striated muscle myosins as well as vertebrate nonmuscle myosin IIA and IIB with IC_{50} values ranging from 0.5 to 5 μM. Smooth muscle myosin is only poorly inhibited (IC_{50}=80 μM)[1]. Blebbistatin does not compete with nucleotide binding to the skeletal muscle myosin subfragment-1. The inhibitor preferentially binds to the ATPase intermediate with ADP and phosphate bound at the active site, and it slows down phosphate release. It blocks the

	myosin heads in a products complex with low actin affinity[2]. In culture-activated hepatic stellate cells, blebbistatin is found to change both cell morphology and function. Stellate cells become smaller, acquire a dendritic morphology and have less myosin IIA-containing stress fibres and vinculin-containing focal adhesions. Blebbistatin impairs silicone wrinkle formation, reduces collagen gel contraction and blocks endothelin-1-induced intracellular Ca^{2+} release. It promotes wound-induced cell migration[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Blebbistatin dose-dependently and completely relax both KCl- and carbachol-induced rat detrusor and endothelin-1-induced human bladder contraction. Pre-incubation with 10 μM blebbistatin attenuates carbachol responsiveness by 65% while blocking electrical field stimulation-induced bladder contraction reaching 50% inhibition at 32 Hz[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [3]	Freshly isolated HSCs are replated on 96-well plate. At day 3, medium is replaced by serum-free medium and cells are starved overnight, treated with or without blebbistatin (25 μM) for 2 h followed by stimulation with platelet-derived growth factor-BB (20 ng/mL). After an overnight incubation, the WST-1 cell proliferation assay are performed[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Adv Sci (Weinh). 2020 Jun 17;7(15):1903583.
- Theranostics. 2019 Apr 13;9(9):2555-2571.
- Anal Chem. 2017 Oct 17;89(20):10841-10849.
- Colloids Surf B Biointerfaces. 2019 Oct 1;182:110332.
- Nanomedicine (Lond). 2019 Mar;14(5):613-626.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Cristina Lucas-Lopez, et al. Absolute Stereochemical Assignment and Fluorescence Tuning of the Small Molecule Tool, (–)-Blebbistatin.

[2]. Ponsaerts R, et al. The myosin II ATPase inhibitor blebbistatin prevents thrombin-induced inhibition of intercellularcalcium wave propagation in corneal endothelial cells. Invest Ophthalmol Vis Sci. 2008 Nov;49(11):4816-27.

India Contact:
Life Technologies (India) Pvt. Ltd.
306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444
Email: customerservice@lifetechindia.com Website: www.lifetechindia.com