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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

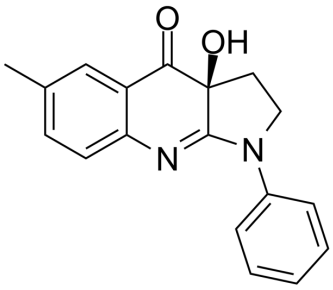
mail@szabo-scandic.com

www.szabo-scandic.com

linkedin.com/company/szaboscandic

(-)-Blebbistatin (GMP)

Cat. No.:	HY-13441G
CAS No.:	856925-71-8
Molecular Formula:	$C_{18}H_{16}N_2O_2$
Molecular Weight:	292.33
Target:	Myosin
Pathway:	Cytoskeleton
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	(-)-Blebbistatin (GMP) is (-)-Blebbistatin (HY-13441) produced by using GMP guidelines. (-)-Blebbistatin (GMP) is a selective inhibitor of the ATPase activity of non-muscle myosin II[1][2].
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.

CUSTOMER VALIDATION

- Cell. 2024 May 9:S0092-8674(24)00448-3.
- Circulation. 2023 Nov 14.
- Adv Sci (Weinh). 2022 Mar 3;e2104682.
- Adv Sci (Weinh). 2020 Jun 17;7(15):1903583.
- Theranostics. 2019 Apr 13;9(9):2555-2571.

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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.

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