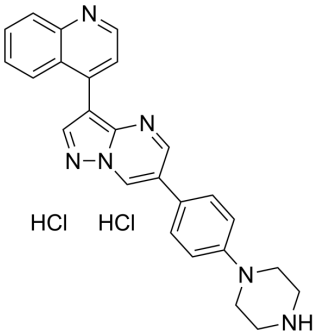
LDN-193189 dihydrochloride

Cat. No.:	HY-12071B
CAS No.:	1435934-00-1
Molecular Formula:	$C_{25}H_{24}Cl_2N_6$
Molecular Weight:	479.4
Target:	TGF-β Receptor; Organoid
Pathway:	TGF-beta/Smad; Stem Cell/Wnt
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 11.11 mg/mL (23.17 mM; Need ultrasonic)
DMSO : 10 mg/mL (20.86 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.0859 mL	10.4297 mL	20.8594 mL
5 mM	0.4172 mL	2.0859 mL	4.1719 mL
10 mM	0.2086 mL	1.0430 mL	2.0859 mL

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

BIOLOGICAL ACTIVITY

Description

LDN-193189 (dihydrochloride) is a potent selective BMP type I receptor (BMP I) inhibitor. LDN-193189 efficiently inhibits transcriptional activity of the BMP type I receptors ALK2 and ALK3 with IC_{50} values of 5 nM and 30 nM, respectively. LDN-193189 can be used for the research of bone morphogenetic protein signalling, such as fibrodysplasia ossificans progressiva [1][2][3].

In Vitro

LDN-193189 efficiently inhibits transcriptional activity of the BMP type I receptors ALK2 and ALK3 with IC_{50} values of 5 nM and 30 nM, respectively[1].
LDN-193189 has weake effects on activin and the TGF-β type I receptors ALK4, ALK5 and ALK7 with IC_{50} values of ≥ 500 nM[1].
LDN-193189 binds ActRIIA with K_d value of 14 nM[2].
LDN-193189 (0.5 μM; 30 min) targets GDF8 induced Smad2/3 signaling and repression of myogenic transcription factors[2].
LDN-193189 (0.05, 0.5, 5 μM) efficiently inhibits GDF8 induced Smad3/4 reporter gene activity[2].
LDN-193189 (0-5 μM) rescues myogenesis in myoblasts treated with GDF8[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

LDN-193189 (i.p.; 3 mg/kg; daily; for 35 days) might affect the interaction between breast cancer cells and the bone environment[3].

LDN-193189 (i.p.; 3 mg/kg; single) shows a reduction in ectopic ossification and functional impairment[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nature. 2022 May;605(7909):325-331.
- Eur Respir J. 2021 Dec 2;2100327.
- Mol Cell. 2022 Jun 3;S1097-2765(22)00480-4.
- Biomaterials. 2020 May;240:119849.
- J Hazard Mater. 2023 Nov 19, 133028.

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REFERENCES

[1]. Yu PB, et al. BMP type I receptor inhibition reduces heterotopic [corrected] ossification. Nat Med, 2008, 14(12), 1363-1369.

[2]. Daniel Horbelt, et al. Small molecules dorsomorphin and LDN-193189 inhibit myostatin/GDF8 signaling and promote functional myoblast differentiation. J Biol Chem. 2015 Feb 6;290(6):3390-404.

[3]. Julien Vollaire, et al. The Bone Morphogenetic Protein Signaling Inhibitor LDN-193189 Enhances Metastasis Development in Mice. Front Pharmacol. 2019 Jun 19;10:667.

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