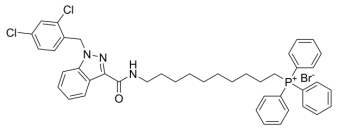
Mito-LND

Cat. No.:	HY-134832
CAS No.:	2361564-49-8
Molecular Formula:	$C_{43}H_{45}BrCl_2N_3OP$
Molecular Weight:	801.62
Target:	Mitochondrial Metabolism; Reactive Oxygen Species; Autophagy; Oxidative Phosphorylation
Pathway:	Metabolic Enzyme/Protease; Immunology/Inflammation; NF-κB; Autophagy
Storage:	-20°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

DMSO : 50 mg/mL (62.37 mM; Need ultrasonic)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	1.2475 mL	6.2374 mL	12.4747 mL
5 mM	0.2495 mL	1.2475 mL	2.4949 mL
10 mM	0.1247 mL	0.6237 mL	1.2475 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: ≥ 2.5 mg/mL (3.12 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Mito-LND (Mito-Lonidamine) is an orally active and mitochondria-targeted inhibitor of oxidative phosphorylation (OXPHOS). Mito-LND inhibits mitochondrial bioenergetics, stimulates the formation of reactive oxygen species, and induces autophagic cell death in lung cancer cells[1].

In Vitro

Mito-LND blocks lung cancer growth, migration, and invasion. Mito-LND inhibits cell growth of H2030BrM3 and A549 cells with IC_{50} values of 0.74 μM and 0.69 μM, respectively[1].

Mito-LND inhibits mitochondrial complex I and II activities with IC_{50} values of 1.2 μM and 2.4 μM, respectively in H2030BrM3 cells[1].

Mito-LND (1 μM) increases ROS generation in H2030BrM3 lung cancer cells. Mito-LND potently induces mitochondrial ROS generation in H2030BrM3 lung cancer cells[1].

Mito-LND (2 μM) decreases the levels of phosphorylated AKT. Mito-LND also decreases the phosphorylation of P70S6K and other energy-sensing proteins in both the parental and metastatic lung cancer cell lines, indicating that Mito-LND specifically downregulates mTOR signaling[1].

	MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Mito-LND (7.5 μmol/kg; oral gavage; 5 days per week; for 3 consecutive weeks) treatment markedly enhanced potency against both lung cancer progression and metastasis[1]. Mito-LND also decreases the rate of growth of A549 tumor xenografts[1]. Mito-LND treatment shows a marked decrease in lung cancer brain metastasis in NOD/SCID mice bearing H2030BrM3 cells[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Athymic nude mice (5 weeks) injected with H2030BrM3 cells[1]
Dosage:	7.5 μmol/kg
Administration:	Oral gavage; 5 days per week; for 3 consecutive weeks
Result:	Significantly decreased tumor progression.

CUSTOMER VALIDATION

- J Transl Med. 2023 Aug 7;21(1):532.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Gang Cheng, et al. Targeting lonidamine to mitochondria mitigates lung tumorigenesis and brain metastasis. Nat Commun. 2019 May 17;10(1):2205.

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