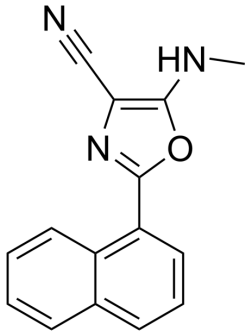
ML351

Cat. No.:	HY-111310
CAS No.:	847163-28-4
Molecular Formula:	$C_{15}H_{11}N_3O$
Molecular Weight:	249.27
Target:	Lipoxygenase
Pathway:	Metabolic Enzyme/Protease
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (501.46 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	4.0117 mL	20.0586 mL	40.1171 mL
	5 mM	0.8023 mL	4.0117 mL	8.0234 mL
	10 mM	0.4012 mL	2.0059 mL	4.0117 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (8.34 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

ML351 is a potent and highly specific 15-LOX-1 inhibitor with an IC_{50} of 200 nM. ML351 shows excellent selectivity (>250-fold) versus the related isozymes, 5-LOX, platelet 12-LOX, 15-LOX-2, ovine COX-1, and human COX-2[1]. ML351 prevents dysglycemia and reduces β-cell oxidative stress in nonobese diabetic mouse model of T1D[2].

In Vitro

ML351 (1-50 μM; 24 hours) displays no deleterious effects on cellular apoptosis (by caspase activity assay)[2].
ML351 (10-50 μM; 24 h) protects mouse islets in a T1D model in vitro. Islets exposed to proinflammatory cytokines exhibits increased insulin release at 2.5 mM glucose and impaired insulin release in response to 25 mM glucose. However, ML351 restores insulin secretion at 2.5 mmol/L glucose to control levels, and insulin release in response to 25 mM glucose is significantly improved compared with treatment with proinflammatory cytokines alone[2].
ML351 reverses the stimulation of ROS production in mouse islets in response to proinflammatory cytokines in vitro[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

ML351 (0-48 mg/kg; before the beginning of the STZ series and concluding 5 days after the last dose of STZ) protects against diabetes development in an STZ β-cell injury model. ML351 at 24 mg/kg (M24)+ STZ shows significantly less weight reduction compares with control group. M24 shows almost complete protection from hyperglycemia. But M48 and M0 exhibits frank hyperglycemia by day 9 of the study and significantly impaired GTTs[2].

ML351 (intraperitoneal injection; 0-24 mg/kg; daily for 2 weeks) leads to improved glycemic control and significantly reduced insulitis. The reduction of β-cell death in NOD mice has been suggested to lead to reductions in insulitis, likely by mitigating the chemotactic signals released by dying β-cells. NOD + M24 animals exhibited improved glycemic control compared with NOD + M0 animals[2].

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

Animal Model:	Nine-week-old male C57BL/6J mice[2]
Dosage:	0 mg/kg; 24 mg/kg; 48 mg/kg;
Administration:	Intraperitoneal injection before the beginning of the STZ series and concluding 5 days after the last dose of STZ
Result:	Protected against diabetes development in an STZ β-cell injury model that mimics the inflammation seen in T1D.

Animal Model:	Female NOD mice develop spontaneous autoimmune diabetes between 12 and 24 weeks of age[2]
Dosage:	0 mg/kg; 24 mg/kg; 48 mg/kg;
Administration:	Intraperitoneal injection before the beginning of the STZ series and concluding 5 days after the last dose of STZ
Result:	Protected Against Early Glycemic Deterioration in NOD Mice.

REFERENCES

[1]. Thomas Gaberel, et al. Impact of 12/15-Lipoxygenase on Brain Injury After Subarachnoid Hemorrhage. Stroke. 2019 Feb;50(2):520-523.

[2]. Ganesha Rai, et al. Discovery of ML351, a Potent and Selective Inhibitor of Human 15-Lipoxygenase-1

[3]. Marimar Hernandez-Perez, et al. Inhibition of 12/15-Lipoxygenase Protects Against β-Cell Oxidative Stress and Glycemic Deterioration in Mouse Models of Type 1 Diabetes. Diabetes. 2017 Nov;66(11):2875-2887.

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