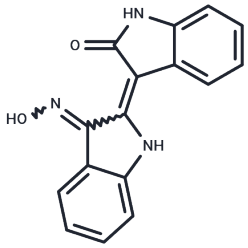
Data Sheet (Cat.No.T5200)

TargetMol

Indirubin-3'-monoxime

Chemical Properties



CAS No. : 160807-49-8

Formula: C16H11N3O2

Molecular Weight: 277.28

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Indirubin-3'-monoxime (Indirubin-3'-oxime) is a potent inhibitor of GSK3β (IC50: 22 nM) and also inhibits CDKs ((IC50s: 100/180/250 nM for Cdk5/p35, Cdk1/cyclin B, Cdk2/cyclin E).
Targets(IC50)	CDK,GSK-3,Lipoxygenase
In vitro	Indirubins are powerful inhibitors (IC50: 5-50 nM) of GSK-3 beta. Bacterially expressed recombinant human tau was indeed phosphorylated in vitro by GSK-3β, and this phosphorylation was inhibited in a dose-dependent manner by indirubin-3′-monoxime, with an IC50 value of around 100 nM [1]. Indirubin-3'-monoxime reversibly arrests asynchronous HBL-100 cells in G2. Indirubin-3'-monoxime inhibits the phosphorylation of consensus CDK phosphorylation sites as well as of nucleolin at a specific CDK1/cyclin B phosphorylation site [2]. In cell-based and cell-free assays, Indirubin-3'-monoxime selectively inhibited 5-lipoxygenase (5-LO), the key enzyme in LT biosynthesis, with an IC50 in the low micromolar range [3].
In vivo	The mice treated with IMX showed a significant reduction in plasma glucose, triglycerides, cholesterol, insulin levels and improvement in learning and memory performance, attenuated the oxidative stress and AChE activity. Moreover, IMX dose-dependently augments the brain insulin and BDNF levels in HFD fed mice [4].
Kinase Assay	Kinase activities were assayed in Buffer A or C (unless otherwise stated), at 30?°C, at a final ATP concentration of 15 μM. Blank values were subtracted, and activities were calculated as picomoles of phosphate incorporated for a 10-min incubation. The activities are usually expressed in percentage of the maximal activity, i.e. in the absence of inhibitors. Controls were performed with appropriate dilutions of dimethyl sulfoxide. In a few cases, phosphorylation of the substrate was assessed by autoradiography after SDS-PAGE [1].
Cell Research	To determine the effects of aminopurvalanol and indirubin-3′-monoxime on tau phosphorylation, Sf9 cells infected with baculovirus expressing htau23 protein were treated 36 h post-infection (when cells have already expressed levels of tau sufficient for the outgrowth of cell processes) with 20 μM inhibitors for 3 h before being harvested [1].
Animal Research	Male mice (5-6 weeks old) were randomly assigned into five groups (n = 10). Group 1: received normal pellet diet (NPD); Group 2: received a HFD; Group 3-5 received HFD for 8 weeks followed by Indirubin-3'-monoxime (IMX) treatment (0.1, 0.2 and 0.4 mg/kg i.p, respectively) once daily for 1 week. IMX was dissolved in (2.5% v/v) DMSO in saline. The

Animal Research	mice in NPD and HFD groups received an equivalent volume of vehicle (2.5% v/v DMSO in saline). The composition of HFD was similar as described by Srinivasan. Doses of IMX were selected based on the reports available in literature. Mice were kept under standard husbandry conditions (22 ± 1 C and 60% humidity) and maintained on a 12/12-h light/dark schedule with free access to food and water for 8 weeks. Body weight was recorded weekly throughout the experimental period [4].

Solubility Information

Solubility	H2O: Insoluble, Ethanol: 15 mg/mL (54.1 mM),Sonication is recommended. DMSO: 81.67 mg/mL (294.54 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (7.21 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.6065 mL	18.0323 mL	36.0646 mL
5 mM	0.7213 mL	3.6065 mL	7.2129 mL
10 mM	0.3606 mL	1.8032 mL	3.6065 mL
50 mM	0.0721 mL	0.3606 mL	0.7213 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Leclerc S, et al. Indirubins inhibit glycogen synthase kinase-3 beta and CDK5/p25, two protein kinases involved in abnormal tau phosphorylation in Alzheimer's disease. A property common to most cyclin-dependent kinase inhibitors? J Biol Chem. 2001 Jan 5;276(1):251-60.

Damiens E, et al. Anti-mitotic properties of indirubin-3'-monoxime, a CDK/GSK-3 inhibitor: induction of endoreplication following prophase arrest. Oncogene. 2001 Jun 28;20(29):3786-97.

Blazevic T, et al. Indirubin-3'-monoxime exerts a dual mode of inhibition towards leukotriene-mediated vascular smooth muscle cell migration. Cardiovasc Res. 2014 Mar 1;101(3):522-32.

Sharma S, et al. Neuroprotective role of Indirubin-3'-monoxime, a GSKβ inhibitor in high fat diet induced cognitive impairment in mice. Biochem Biophys Res Commun. 2014 Oct 3;452(4):12009-15.

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