Norharmane

Cat. No.: HY-W008566

CAS No.: 244-63-3

Molecular Formula: $C_{11}H_8N_2$

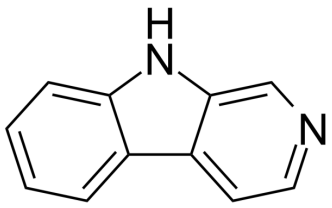
Molecular Weight: 168.2

Target: Monoamine Oxidase; Endogenous Metabolite

Pathway: Neuronal Signaling; 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 : 11 mg/mL (65.40 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	5.9453 mL	29.7265 mL	59.4530 mL
5 mM	1.1891 mL	5.9453 mL	11.8906 mL
10 mM	0.5945 mL	2.9727 mL	5.9453 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: ≥ 1.1 mg/mL (6.54 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 1.1 mg/mL (6.54 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Norharmane (Norharman), a β-carboline alkaloid, is a potent and reversible monoamine oxidase inhibitor, with IC_{50} values of 6.5 and 4.7 μM for MAO-A and MAO-B, respectively. Norharmane causes antidepressant responses. Norharmane is also a prospective anti-cancer photosensitizer. Norharmane alters polar auxin transport (PAT) by inhibiting PIN2, PIN3 and PIN7 transport proteins, thus causing a significant inhibitory effect on the growth of Arabidopsis thaliana seedlings[1][2][3][4][5][6].

IC_{50} & Target			
	MAO-B 4.7 μM (IC_{50})	MAO-A 6.5 μM (IC_{50})	Human Endogenous Metabolite

In Vitro

Norharmane attenuates quinolinic acid formation by interferon-gamma-stimulated monocytes THP-1 cells and attenuates

L-kynurenine formation, with IC_{50} values of 51 μM and 43 μM, respectively[4].
Norharmane has the potential for use as an antibiotic adjuvant to enhance the efficacy of conventional antibiotics to reduce pathogenic bacterial infections[6].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Norharmane (0-10 mg/kg, IP, once) shows an anxiety- and antidepressant-like behavior, and decreased locomotor activity[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male NMRI mice (22-25 g)[3]
Dosage:	0, 2.5, 5 and 10 mg/kg
Administration:	IP, once
Result:	Elicited an anxiety- and antidepressant-like behavior, and decreased locomotor activity.

REFERENCES

[1]. López-González D, et al. A natural indole alkaloid, norharmane, affects PIN expression patterns and compromises root growth in Arabidopsis thaliana. Plant Physiol Biochem. 2020 Jun;151:378-390.

[2]. Ebrahimi-Ghiri M, et al. Anxiolytic and antidepressant effects of ACPA and harmaline co-treatment. Behav Brain Res. 2019 May 17;364:296-302.

[3]. Saito K, Chen CY, Masana M, Crowley JS, Markey SP, Heyes MP. 4-Chloro-3-hydroxyanthranilate, 6-chlorotryptophan and norharmane attenuate quinolinic acid formation by interferon-gamma-stimulated monocytes (THP-1 cells). Biochem J. 1993 Apr 1;291 (Pt 1)(Pt 1):11-4.

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[6]. Herraiz T, et al. Human monoamine oxidase enzyme inhibition by coffee and beta-carbolines norharman and harman isolated from coffee. Life Sci. 2006 Jan 18;78(8):795-802.

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