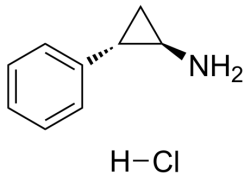
Tranylcypromine hydrochloride

Cat. No.:	HY-17447A
CAS No.:	1986-47-6
Molecular Formula:	$C_9H_{12}ClN$
Molecular Weight:	169.65
Target:	Monoamine Oxidase
Pathway:	Neuronal Signaling
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



Relative stereochemistry

SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (589.45 mM; Need ultrasonic)
DMSO : 100 mg/mL (589.45 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	5.8945 mL	29.4724 mL	58.9449 mL
	5 mM	1.1789 mL	5.8945 mL	11.7890 mL
	10 mM	0.5894 mL	2.9472 mL	5.8945 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 (14.74 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (14.74 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (14.74 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Tranylcypromine hydrochloride (SKF 385 hydrochloride) is an irreversible inhibitor of lysine-specific demethylase 1 (LSD1/BHC110) and monoamine oxidase (MAO). Tranylcypromine hydrochloride inhibits LSD1, MAO A and MAO B with IC_{50}s of 20.7, 2.3 and 0.95 μM, respectively. Tranylcypromine hydrochloride can be used for the research of depression[1][2][3].

IC_{50} & Target

MAO-A	MAO-B
2.3 μM (IC_{50})	0.95 μM (IC_{50})

In Vitro

Tranylcypromine hydrochlorid (50 μM-5 mM; 1 h or 12-14 h) inhibits histone and nucleosomal demethylation[1].

Tranylcypromine hydrochlorid (2 μM; 3 h) shows a specific derepression of OCT4 transcription[1].
Tranylcypromine hydrochlorid (0-100 μM; 15 min) shows IC_{50} values of 20.7, 2.3 and 0.95 μM for LSD1, MAO A and MAO B, respectively[2].
Tranylcypromine hydrochlorid (0-800 μM) shows K_i values of 242.7, 101.9 and 16 μM for LSD1, MAO A and MAO B, respectively [2].

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

Western Blot Analysis[1]

Cell Line:	Sf21 insect cell line
Concentration:	50 μM, 200 μM, 1 mM and 5 mM
Incubation Time:	12-14 hours or 1 hour
Result:	Showed inhibitory activities of histone H3K4 demethylation and nucleosomal demethylation.

RT-PCR[1]

Cell Line:	P19 EC cell line
Concentration:	2 μM
Incubation Time:	3 hours
Result:	Decreased Oct4 mRNA levels.

In Vivo

Tranylcypromine hydrochlorid (3 mg/kg; i.p. once daily for 3 days) decreases LPS-mediated microglial activation and proinflammatory cytokine COX-2 and IL-6 levels in wild-type mice[3].
Tranylcypromine hydrochlorid (3 mg/kg; i.p. once daily for 7 days) down-regulates Aβ-mediate microglial activation in 5xFAD mice[3].

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

Animal Model:	Wild-type mice[3]
Dosage:	3 mg/kg
Administration:	Intraperitoneal injection; 3 mg/kg once daily for 3 days
Result:	Significantly down-regulated LPS-stimulated microglial activation in the cortex and Hippocampus, and LPS-induced astrocyte activation only in the cortex. Reduced LPS-induced COX-2 levels in hippocampus CA1, decreased LPS-evoked IL-6 levels in the cortex and hippocampus CA1 and suppressed LPS-mediated IL-1β levels in the cortex.

Animal Model:	5xFAD mice[3]
Dosage:	3 mg/kg
Administration:	Intraperitoneal injection; 3 mg/kg once daily for 7 days
Result:	Differentially regulated microglial and astrocyte activation in this mouse model of AD.

CUSTOMER VALIDATION

- Biomaterials. 2018 Dec 6;193:30-46.
- Biol Reprod. 2020 Dec 1;103(6):1229-1237.
- Biochem Biophys Res Commun. 2019 May 14;512(4):852-858.
- Patent. US20180263995A1.

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REFERENCES

[1]. Lee MG, et al. Histone H3 lysine 4 demethylation is a target of nonselective antidepressive medications. Chem Biol. 2006 Jun;13(6):563-7.

[2]. Schmidt DM, McCafferty DG. trans-2-Phenylcyclopropylamine is a mechanism-based inactivator of the histone demethylase LSD1. Biochemistry. 2007 Apr 10;46(14):4408-16.

[3]. Park H, et al. The MAO Inhibitor Tranylcypromine Alters LPS- and Aβ-Mediated Neuroinflammatory Responses in Wild-type Mice and a Mouse Model of AD. Cells. 2020 Aug 28;9(9):1982.

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