Metyrapone

Cat. No.: HY-B1232

CAS No.: 54-36-4

Molecular Formula: $C_{14}H_{14}N_2O$

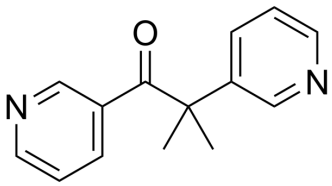
Molecular Weight: 226.27

Target: Cytochrome P450; Autophagy; Endogenous Metabolite

Pathway: Metabolic Enzyme/Protease; Autophagy

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (441.95 mM; Need ultrasonic)

H_2O : ≥ 38 mg/mL (167.94 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	4.4195 mL	22.0975 mL	44.1950 mL
	5 mM	0.8839 mL	4.4195 mL	8.8390 mL
	10 mM	0.4419 mL	2.2097 mL	4.4195 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (441.95 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (11.05 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (11.05 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (11.05 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Metyrapone (Su-4885) is a potent and orally active 11β-hydroxylase inhibitor and an autophagy activator, also inhibits the production of aldosterone. Metyrapone inhibits synthesis of endogenous adrenal corticosteroid, decreases glucocorticoid levels, and also affects behavior and emotion. In addition, Metyrapone increases the efficiency of autophagic process via

	downregulation of mTOR pathway, and interacts with Pseudomonas putida cytochrome P-450. Metyrapone can be used for researching Cushing's syndrome and depression[1][2][3][4][5].
IC_{50} & Target	11β-hydroxylase, Aldosterone, CYP450, Autophagy[1][4][5]
In Vitro	Metyrapone (100?μM; 2 h) hyperactivates autophagy in HepG2, and delays the activation of apoptosis at severe endoplasmic reticulum (ER) stress[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Metyrapone (25 or 50 mg/kg; SC, single dosage) decreases the stress-induced increase in plasma corticosterone levels, significantly impairs acquisition performance at high dosage, and increases open arm activity at low dosage[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Sprague-Dawley rats (n=179; 270-300g)[1]
Dosage:	25 or 50 mg/kg (in a volume of 2.0 mL/kg)
Administration:	SC, single dosage
Result:	Dose-dependently decreased the stress-induced increase in plasma corticosterone levels in the water maze test; the high level dose significantly impaired acquisition performance in the water maze and decreased fear-induced immobility; the lower dose increased open arm activity.

CUSTOMER VALIDATION

- Immunity. 2024 Feb 13;57(2):364-378.e9.
- Brain Behav Immun. 2019 Nov;82:178-187.
- J Pharmaceut Biomed. 2023 May 10.
- J Neuroendocrinol. e13212.
- Biochem Biophys Res Commun. 2020 Jun 11;526(4):913-919.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Roozendaal B, et al. Dose-dependent suppression of adrenocortical activity with metyrapone: effects on emotion and memory. Psychoneuroendocrinology. 1996 Nov;21(8):681-93.

[2]. Jahn H, et al. Metyrapone as additive treatment in major depression: a double-blind and placebo-controlled trial. Arch Gen Psychiatry. 2004 Dec;61(12):1235-44.

[3]. Daniel E, et al. Effectiveness of Metyrapone in Treating Cushing's Syndrome: A Retrospective Multicenter Study in 195 Patients. J Clin Endocrinol Metab. 2015 Nov;100(11):4146-54.

[4]. Peterson JA, Ullrich V, Hildebrandt AG. Methyrapone interaction with Pseudomonas putida cytochrome P-405. Arch Biochem Biophys. 1971 Aug;145(2):531-42.

[5]. Holczer M, et al. A Comprehensive Systems Biological Study of Autophagy-Apoptosis Crosstalk during Endoplasmic Reticulum Stress. Biomed Res Int. 2015;2015:319589.

Caution: Product has not been fully validated for medical applications. For research use only.

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