Buspirone

Cat. No.: HY-B1115A

CAS No.: 36505-84-7

Molecular Formula: $C_{21}H_{31}N_5O_2$

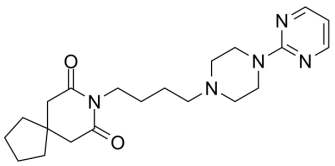
Molecular Weight: 385.5

Target: 5-HT Receptor; Reactive Oxygen Species; Dopamine Receptor

Pathway: GPCR/G Protein; Neuronal Signaling; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB

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 : 100 mg/mL (259.40 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.5940 mL	12.9702 mL	25.9403 mL
5 mM	0.5188 mL	2.5940 mL	5.1881 mL
10 mM	0.2594 mL	1.2970 mL	2.5940 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 (6.49 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.49 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.49 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Buspirone is an orally active 5-HT1A receptor agonist, and a dopamine D2 autoreceptorsant antagonist. Buspirone is an anxiolytic agent, and can be used for the generalized anxiety disorder research[1].

IC_{50} & Target		
	5-HT_{1A} Receptor	Dopamine D2 receptor

In Vitro

The anxiolytic and anti-depressant effects of Buspirone are produced by activating 5-HT1A autoreceptors and 5-HT1A

heteroreceptors, respectively[1].
Buspirone (0-400 μg/mL; 6 hours) has cytotoxic effect in lymphocytes[2].
Buspirone (0-180 μg/mL; 0-3 hours; lymphocytes) induces ROS formation, mitochondrial membrane potential collapse(MMP), lipid peroxidation, lysosomal damage and elevation of glutathione disulfide (GSSG)[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	Lymphocytes
Concentration:	0, 4, 20, 40, 200 and 400 μg/mL
Incubation Time:	6 hours
Result:	Decreased cell viability in a dose-dependent manner.

In Vivo

Buspirone (1-5 mg/kg; i.p. and i.g.; for 5 days; C57BL/6N mice) reduces anxiety/depression behaviors[1].
Buspirone (1-5 mg/kg; i.p. and i.g.; for 5 days; C57BL/6N mice) restores immobilization stress (IS)-shifted β-diversity in the gut microbiota[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male C57BL/6N mice[1]
Dosage:	1 and 5 mg/kg
Administration:	Oral gavage and intraperitoneal injection; for 5 days
Result:	Reduced TNF-α expression and NF-κB$^+$/Iba1$^+$ cell population in the hippocampus and myeloperoxidase activity and NF-κB$^+$/CD11c$^+$ cell population in the colon.

Animal Model:	Male C57BL/6N mice[1]
Dosage:	1 and 5 mg/kg
Administration:	Oral gavage and intraperitoneal injection; for 5 days
Result:	Reduced the IS- or Escherichia coli K1 (EC)-induced gut Proteobacteria population.

REFERENCES

[1]. Salimi A, et, al. Analysis of Toxicity Effects of Buspirone, Cetirizine and Olanzapine on Human Blood Lymphocytes: in Vitro Model. Curr Clin Pharmacol. 2018;13(2):120-127.

[2]. Kim JK, et, al. Buspirone alleviates anxiety, depression, and colitis; and modulates gut microbiota in mice. Sci Rep. 2021 Mar 17;11(1):6094.

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