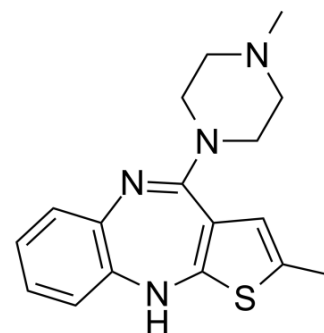


Olanzapine

Cat. No.:	HY-14541
CAS No.:	132539-06-1
Molecular Formula:	C ₁₇ H ₂₀ N ₄ S
Molecular Weight:	312.43
Target:	5-HT Receptor; Dopamine Receptor; mAChR; Adrenergic Receptor; Autophagy; Mitophagy; Apoptosis
Pathway:	GPCR/G Protein; Neuronal Signaling; Autophagy; Apoptosis
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro	DMSO : 20 mg/mL (64.01 mM; Need ultrasonic)					
	Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg
		1 mM		3.2007 mL	16.0036 mL	32.0072 mL
		5 mM		0.6401 mL	3.2007 mL	6.4014 mL
		10 mM		0.3201 mL	1.6004 mL	3.2007 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 mg/mL (6.40 mM); Clear solution					
	2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2 mg/mL (6.40 mM); Clear solution					
	3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2 mg/mL (6.40 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	Olanzapine (LY170053) is a selective monoaminergic antagonist with high affinity binding to serotonin H ₁ , 5HT _{2A/2C} , 5HT ₃ , 5HT ₆ (K _i =7, 4, 11, 57, and 5 nM, respectively), dopamine D ₁₋₄ (K _i =11 to 31 nM), muscarinic M ₁₋₅ (K _i =1.9-25 nM), and adrenergic α ₁ receptor (K _i =19 nM). Olanzapine is an atypical antipsychotic ^{[1][2]} .			
IC₅₀ & Target	5-HT ₁ Receptor 7 nM (K _i)	5-HT _{2A} Receptor 4 nM (K _i)	5-HT _{2C} Receptor 11 nM (K _i)	5-HT ₃ Receptor 57 nM (K _i)
	5-HT ₆ Receptor 5 nM (K _i)	Muscarinic M ₁₋₅ Receptor 1.9-25 nM (K _i)	Adrenergic α ₁ Receptor 19 nM (K _i)	Dopamine Receptor

	Mitophagy	Apoptosis
In Vitro	<p>Olanzapine binds weakly to GABAA, Benzodiazepine (BZD), and β-adrenergic receptors ($K_i > 10 \mu\text{M}$) [1][2].</p> <p>Olanzapine induces autophagy in human SH-SY5Y neuronal cell line[3].</p> <p>Olanzapine (1-100 μM for 144 h under serum starvation) results in a marked anti-proliferative effect in glioblastoma cell lines as well as glioma stem-like cells[4].</p> <p>Olanzapine also enhances Temozolomide's anti-tumor activity in glioblastoma cell lines[4].</p> <p>Olanzapine induces apoptosis and necrosis in glioblastoma cell lines[4].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Proliferation Assay[4]</p>	
	Cell Line:	U87MG and A172 glioblastoma cell lines as well as SC38 and SC40 glioma stem-like cells
	Concentration:	1, 10, 100 μM
	Incubation Time:	144 h; under serum starvation (1.5 % FBS) prior to performing MTT-assays
	Result:	Resulted in a marked antiproliferative effect with IC_{50} values ranging from 25 to 79.9 μM . In U87MG cells, anchorage-independent growth was dose-dependently inhibited. In A172 cells, migration was also shown to be inhibited in a dose-dependent manner.
	Western Blot Analysis[4]	
	Cell Line:	U87MG and A172 cells
	Concentration:	10, 25, 50, and 100 μM
	Incubation Time:	7 h, 24 h, 48 h, 72 h
	Result:	Led to a dose responsive decrease of pAMPK expression after 72 h of treatment.
In Vivo	<p>Olanzapine (0.75, 1.5 and 3 mg/kg) evaluates body weight and periuterine fat mass, as well as insulin, non-esterified fatty acids, triglycerides, and glucose levels in mice[5]</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	
	Animal Model:	Forty-two, 14, and 28 female CD-1 mice [5]
	Dosage:	0.75, 1.5 and 3 mg/kg
	Administration:	Orally and chronically administered; 35 days
	Result:	Increased body weight relative to vehicle on days 20-22, and from day 32 onwards there was a straightforward increase in body weight at 3 mg/kg. No differences were found between control and mice administered olanzapine at both 1.5 and 0.75 mg/kg.

CUSTOMER VALIDATION

- medRxiv. 2021 Mar 1.
- bioRxiv. 2021 Mar 02.

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REFERENCES

[1]. APPROVED AGREED-UPON LABELING.

[2]. Olanzapine for Injection, powder, for solution for intramuscular use.

[3]. Vucicevic L, et al. Autophagy inhibition uncovers the neurotoxic action of the antipsychotic drug olanzapine. *Autophagy*. 2014;10(12):2362-78.

[4]. Karpel-Massler G, et al. Olanzapine inhibits proliferation, migration and anchorage-independent growth in human glioblastoma cell lines and enhances temozolomide's antiproliferative effect. *J Neurooncol*. 2015 Mar;122(1):21-33.

[5]. Coccarello R, et al. Chronic administration of olanzapine induces metabolic and food intake alterations: a mouse model of the atypical antipsychotic-associated adverse effects. *Psychopharmacology (Berl)*. 2006 Jul;186(4):561-71.

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