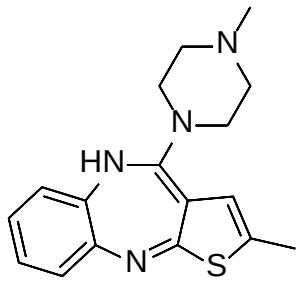
Product data sheet

MedKoo Cat#: 318383 Name: Olanzapine CAS: 132539-06-1 (free base) Chemical Formula: $C_{17}H_{20}N_4S$ Exact Mass: 312.1409 Molecular Weight: 312.4325	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Olanzapine is an atypical antipsychotic. It is approved by the U.S. Food and Drug Administration (FDA) for the treatment of schizophrenia and bipolar disorder. Olanzapine is structurally similar to clozapine and quetiapine. It is a dopamine antagonist and is classified as a thienobenzodiazepine.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	20.0	64.01
DMSO	32.31	103.41
DMSO:PBS (pH 7.2) (1:1)	0.5	1.60
Ethanol	8.0	25.61

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.20 mL	16.00 mL	32.01 mL
5 mM	0.64 mL	3.20 mL	6.40 mL
10 mM	0.32 mL	1.60 mL	3.20 mL
50 mM	0.06 mL	0.32 mL	0.64 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Vucicevic L, Misirkic-Marjanovic M, Paunovic V, Kravic-Stevovic T, Martinovic T, Ciric D, Maric N, Petricevic S, Harhaji-Trajkovic L, Bumbasirevic V, Trajkovic V. Autophagy inhibition uncovers the neurotoxic action of the antipsychotic drug olanzapine. Autophagy. 2014;10(12):2362-78. doi: 10.4161/15548627.2014.984270. PMID: 25551567; PMCID: PMC4502661.
2. Karpel-Massler G, Kast RE, Westhoff MA, Dwucet A, Welscher N, Nonnenmacher L, Hlavac M, Siegelin MD, Wirtz CR, Debatin KM, Halatsch ME. 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. doi: 10.1007/s11060-014-1688-7. Epub 2014 Dec 19. PMID: 25524815.

In vivo study

1. Liu X, Zhang H, Zhang S, Mao W, Liu L, Deng C, Hu CH. Olanzapine-induced decreases of FGF21 in brown adipose tissue via histone modulations drive UCP1-dependent thermogenetic impairment. Prog Neuropsychopharmacol Biol Psychiatry. 2023 Mar 2;122:110692. doi: 10.1016/j.pnpbp.2022.110692. Epub 2022 Dec 9. PMID: 36509252.

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2. Coccurello R, Caprioli A, Ghirardi O, Conti R, Ciani B, Daniele S, Bartolomucci A, Moles A. 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. doi: 10.1007/s00213-006-0368-5. Epub 2006 May 13. PMID: 16758241.

7. Bioactivity

Biological target:

Olanzapine (LY170053) is a selective, orally active monoaminergic antagonist with high affinity binding to serotonin H1, 5HT2A/2C, 5HT3, 5HT6 (Ki=7, 4, 11, 57, and 5 nM, respectively), dopamine D1-4 (Ki=11 to 31 nM), muscarinic M1-5 (Ki=1.9-25 nM), and adrenergic α1 receptor (Ki=19 nM).

In vitro activity

This study's initial hypothesis that olanzapine may enhance temozolomide's anti-tumor activity could be confirmed in U87MG and A172 glioblastoma cell lines. Moreover, treatment with olanzapine alone resulted in a marked anti-proliferative effect on U87MG, A172 and two glioma stem-like cells with IC50 values ranging from 25 to 79.9 μM. In U87MG cells, anchorage-independent growth was dose-dependently inhibited.

Reference: J Neurooncol. 2015 Mar;122(1):21-33. https://pubmed.ncbi.nlm.nih.gov/25524815/

In vivo activity

In experiment 1, the highest dose of chronically administered olanzapine (3 mg/kg) induced significant weight gain accompanied by augmentation of periuterine fat depots, with no changes in locomotor activity. In experiment 2, chronic administration did not alter energy expenditure, whereas, decreased respiratory quotient (RQ). In experiment 3, subcutaneously infused olanzapine evidenced a dose and time-dependent increase of body weight and HF-HS diet consumed.

Reference: Psychopharmacology (Berl). 2006 Jul;186(4):561-71. https://pubmed.ncbi.nlm.nih.gov/16758241/