

Product Data Sheet

Product Name: Olanzapine

Cat. No.: GC12495

Chemical Properties

Cas. No. 132539-06-1

Chemical Name 2-methyl-4-(4-methylpiperazin-1-yl)-5H-thieno[3,2-c][1,5]benzodiazepine

SMILES CC1=CC2=C(NC3=CC=CC=C3N=C2S1)N4CCN(CC4)C

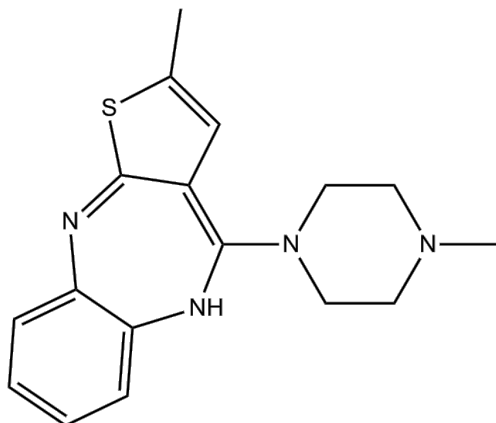
Formula $C_{17}H_{20}N_4S$ M.Wt 312.43

Solubility $\geq 15.6\text{mg/mL}$ in DMSO Storage Store at -20°C , protect from light

General tips For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



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

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Protocol

Cell experiment [1]:

Cell lines	PC12 cells
Preparation Method	After exposure to olanzapine (0 or 100μM) for 24h, and hydrogen peroxide (0 or 100μM) for 1h, cells were examined with the Annexin-V-Fluos Staining Kit, a histological procedure that differentially labels necrotic cells versus cells undergoing apoptosis.
Reaction Conditions	100μM; 24h
Applications	Olanzapine pretreatment attenuated the decrease in cell viability induced by hydrogen peroxide in PC12 cells.

Animal experiment [2]:

Animal models	C57BL/6J mice
Preparation Method	C57BL/6J mice placed in standard rodent cages stored in quarters controlled at 22°C, were subjected to a 12-hr light–dark cycle. The mice were randomly categorized into two groups: The first group received 6mg/kg olanzapine per day through gavage for 7 weeks, and the second group (i.e., the control group) was administered 0.01mL/g normal saline once per day through gavage.
Dosage form	6mg/kg; ig; 7 weeks
Applications	Olanzapine treatment increased food intake and body weight in mice.

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References:

- [1]. Wei Z, Bai O, Richardson J S, et al. Olanzapine protects PC12 cells from oxidative stress induced by hydrogen peroxide[J]. Journal of neuroscience research, 2003, 73(3): 364-368.
- [2]. Hou P H, Chang G R, Chen C P, et al. Long-term administration of olanzapine induces adiposity and increases hepatic fatty acid desaturation protein in female C57BL/6J mice[J]. Iranian Journal of Basic Medical Sciences, 2018, 21(5): 495.

Background

Olanzapine is a monoamine antagonist [1]. Olanzapine inhibits 5-hydroxytryptamine 2A (5-HT_{2A}) receptors with high affinity and antagonizes dopamine D₂ receptors, thereby alleviating symptoms in patients with schizophrenia and bipolar disorder [2-3]. Olanzapine is commonly used to treat acute mania in schizophrenia and bipolar I disorder [4].

In PC12 cells, Olanzapine (100μM; 24h) pretreatment attenuated the decrease in cell viability induced by hydrogen peroxide [5]. In U87 cells, Olanzapine (0-400μM; 24-72h) inhibits tumor cell growth and induces autophagy [6].

In C57BL/6J mice, Olanzapine (6mg/kg; ig; 7 weeks) treatment increased mice food intake and body weight [7]. In Swiss-Kunming mice, Olanzapine (0.01-0.1mg/kg; sc; single injection) treatment improves spatial learning function in the Morris water maze task in mice [8].

References:

- [1]. Thomas K, Saadabadi A. Olanzapine[J]. 2018.
- [2]. Zhang W, Bymaster F P. The in vivo effects of olanzapine and other antipsychotic agents on receptor occupancy and antagonism of dopamine D₁, D₂, D₃, 5HT_{2A} and muscarinic receptors[J]. Psychopharmacology, 1999, 141(3): 267-278.
- [3]. Taraskina A E, Nasyrova R F, Zabolina A M, et al. Potential diagnostic markers of olanzapine efficiency for acute psychosis: a focus on peripheral biogenic amines[J]. BMC psychiatry, 2017, 17(1): 394.
- [4]. McCormack P L, Wiseman L R. Olanzapine: a review of its use in the management of bipolar I disorder[J]. Drugs, 2004, 64(23): 2709-2726

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- [5]. Wei Z, Bai O, Richardson J S, et al. Olanzapine protects PC12 cells from oxidative stress induced by hydrogen peroxide[J]. Journal of neuroscience research, 2003, 73(3): 364-368.
- [6]. Zhu Y, Zhao Y F, Liu R S, et al. Olanzapine induced autophagy through suppression of NF- κ B activation in human glioma cells[J]. CNS Neuroscience & Therapeutics, 2019, 25(9): 911-921.
- [7]. Hou P H, Chang G R, Chen C P, et al. Long-term administration of olanzapine induces adiposity and increases hepatic fatty acid desaturation protein in female C57BL/6J mice[J]. Iranian Journal of Basic Medical Sciences, 2018, 21(5): 495.
- [8]. Hou Y, Wu C F, Yang J Y, et al. Differential effects of haloperidol, clozapine and olanzapine on learning and memory functions in mice[J]. Progress in Neuro-Psychopharmacology and Biological Psychiatry, 2006, 30(8): 1486-1495.

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