Vilazodone

Cat. No.: HY-14262

CAS No.: 163521-12-8

Molecular Formula: $C_{26}H_{27}N_5O_2$

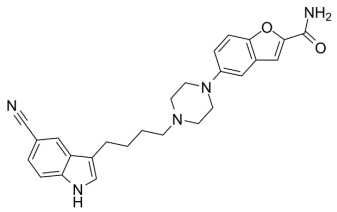
Molecular Weight: 441.52

Target: 5-HT Receptor; Serotonin Transporter

Pathway: GPCR/G Protein; Neuronal Signaling

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 : 75 mg/mL (169.87 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.2649 mL	11.3245 mL	22.6490 mL
	5 mM	0.4530 mL	2.2649 mL	4.5298 mL
	10 mM	0.2265 mL	1.1325 mL	2.2649 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 (5.66 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.66 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Vilazodone (EMD 68843; SB 659746A) is a potent, selective and orally active serotonin reuptake inhibitor (SSRI) and partial 5-HT_1A receptor agonist. Vilazodone exhibits antidepressant efficacy in vivo can be used for the research of major depressive disorder (MDD) and affective disorders[1][2].

IC_{50} & Target

5-HT_{1A} Receptor

In Vitro

Vilazodone shows an IC_{50} of 0.2 nM at the human 5-HT_1A receptor and 0.5 nM for the SERT. Vilazodone preferentially binds to the high agonist affinity state of human 5-HT_1A receptors, and it displays high affinity (pK_i≥9.3) for human recombinant and rat, guinea pig, mouse, and marmoset native tissue 5-HT_{1A} receptors.
Vilazodone acts as a high efficacy partial agonist at 5-HT_1A receptors. In [^{35}S]GTPγS binding studies in Sf9 cells expressing

	h5-HT_1A receptors, a single concentration of Vilazodone (100nM) increases basal binding by approximately 70% of that produced by the full 5-HT_1A receptor agonist, 8-OH-PIPAT. In [^{35}S]GTPγS binding studies in rat hippocampal membranes, Vilazodone acts as a potent 5-HT_{1A} receptor partial agonist with a pEC_{50} of 8.1 and an intrinsic activity of 0.61. Vilazodone acts as a potent 5-HT reuptake inhibitor in rat and guinea pig cortex. In LLCPK cells expressing human SERT, whereby vilazodone inhibits [^{3}H]5-HT uptake with a pIC_{50} of 8.8[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Vilazodone (intraperitoneal injection; 3 mg/kg ; single dose) produces increases in extracellular levels of 5-HT in both the frontal cortex (FC) and ventral hippocampus (vHipp) of rats in vivo microdialysis studies. Maximum increases are observed at 3 mg/kg and reaches 527% and 558% of preinjection baseline values in the FC and vHipp, respectively[2]. Vilazodone (oral gavage ;55 mg/kg ; single dose) inhibits stress-induced vocalizations in the rat ultrasonic vocalizations test at 120 and 210 min post dose[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Prog Neuropsychopharmacol Biol Psychiatry. 2023 Dec 6:110911.

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REFERENCES

[1]. Lee A. Dawson et al. Vilazodone: A 5-HT1A Receptor Agonist/Serotonin Transporter Inhibitor for the Treatment of Affective Disorders CNS Neuroscience & Therapeutics Volume 15, Issue 2, pages 107-117, June 2009

[2]. Cruz MP. Vilazodone HCl (Viibryd): A Serotonin Partial Agonist and Reuptake Inhibitor For the Treatment of Major Depressive Disorder. P T. 2012 Jan;37(1):28-31.

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