Lixivaptan

Cat. No.: HY-14185

CAS No.: 168079-32-1

Molecular Formula: $C_{27}H_{21}ClFN_3O_2$

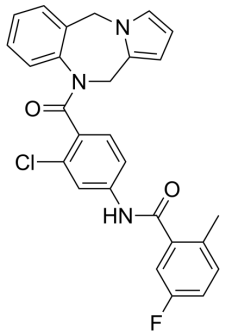
Molecular Weight: 473.93

Target: Vasopressin Receptor

Pathway: GPCR/G Protein

Storage: 4°C, protect from light

* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 150 mg/mL (316.50 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.1100 mL	10.5501 mL	21.1002 mL
5 mM	0.4220 mL	2.1100 mL	4.2200 mL
10 mM	0.2110 mL	1.0550 mL	2.1100 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: ≥ 2.08 mg/mL (4.39 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.39 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Lixivaptan (VPA-985, WAY-VPA 985) is an orally active and selective vasopressin receptor V2 antagonist, with IC_{50} values of 1.2 and 2.3 nM for human and rat V2, respectively.

IC_{50} & Target

V2 Receptor

In Vitro

Lixivaptan displays competitive antagonist activity at V2 receptors[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

In conscious dogs, water-loaded with 30 mL/kg (po) and arginine vasopressin (AVP)-treated (0.4 μg/kg in oil, sc), lixivaptan (1, 3, and 10 mg/kg po) increases U_{vol} over the AVP-treated vehicle group by 438, 1018, and 1133%, respectively, while U_{osm}

decreases from 1222 mOsm/kg (water-loaded and AVP treated vehicle) to 307, 221, and 175 mOsm/kg, respectively. In homozygous Brattleboro rats lacking AVP, lixivaptan at 10 mg/kg po (i.e., 10 times the dose producing V2 antagonist activity) b.i.d. for 5 days, shows a sustained antagonist action without evidence of agonist effects. In a randomized double-blind placebo-controlled ascending single dose study, patients (deprived of fluids overnight before dosing) are dosed orally with 30, 75, or 150 mg of lixivaptan. All three doses increase urine flow and serum sodium concentrations and produced significant dose-related decreases in urinary osmolality[1]. Phase II clinical trials in patients with congestive heart failure, liver cirrhosis with ascites or syndrome of inappropriate antidiuretic hormone have demonstrated that lixivaptan increases water clearance without affecting renal sodium excretion or activating the neurohormonal system[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Eur J Pharmacol. 2020 Aug 5;880:173157.
- SSRN. 2023 May 30.

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REFERENCES

[1]. Albright JD, et al. 5-Fluoro-2-methyl-N-[4-(5H-pyrrolo[2,1-c]-[1, 4]benzodiazepin-10(11H)-ylcarbonyl)-3-chlorophenyl]benzamide (VPA-985): an orally active arginine vasopressin antagonist with selectivity for V2 receptors. J Med Chem. 1998 Jul 2;41(14):2442-4.

[2]. Ghali JK, et al. Lixivaptan, a non-peptide vasopressin V2 receptor antagonist for the potential oral treatment of hyponatremia. IDrugs. 2010 Nov;13(11):782-92.

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