Domperidone

Cat. No.: HY-B0411

CAS No.: 57808-66-9

Molecular Formula: $C_{22}H_{24}ClN_5O_2$

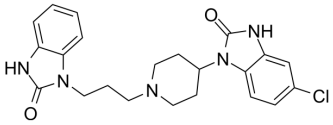
Molecular Weight: 425.91

Target: Dopamine Receptor

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 : 50 mg/mL (117.40 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (ultrasonic) (insoluble)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.3479 mL	11.7396 mL	23.4791 mL
	5 mM	0.4696 mL	2.3479 mL	4.6958 mL
	10 mM	0.2348 mL	1.1740 mL	2.3479 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: ≥ 2.75 mg/mL (6.46 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.75 mg/mL (6.46 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.75 mg/mL (6.46 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Domperidone (R33812) is an orally active and selective dopamine-2 receptor antagonist. Domperidone acts as an antiemetic and a prokinetic agent through its effects on the chemoreceptor trigger zone and motor function of the stomach and small intestine[1].

IC_{50} & Target

D_2 Receptor

In Vitro	Cardiac Na^+ channels are common targets of therapeutics inducing cardiotoxicity[3]. Domperidone (0-1000 μM) displays concentration- and state-dependent inhibitory of Nav1.5 in Human embryonic kidney HEK293 cells[3]. Domperidone (0, 10, 100 μM) displays tonic and use-dependent block to Na currents in rat cardiomyocytes with a IC_{50} of 312 μM[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Unlike Metoclopramide, Domperidone (R33812) does not cause any adverse neurological symptoms as it has minimal penetration through the blood-brain barrier[1]. Domperidone acts as both an antiemetic and an upper gastrointestinal tract prokinetic agent. It is rapidly absorbed after oral administration, and few side effects have been reported[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cancer Lett. 2019 Sep 10;459:135-144.
- J Med Chem. 2021 Mar 11;64(5):2725-2738.
- Cancer Cell Int. 2024 Mar 25;24(1):114.
- Eur J Pharm Sci. 2023 May 22;106475.
- Eur J Pharm Sci. 2021, 105889.

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REFERENCES

[1]. Stoetzer C, et al. Cardiotoxic Antiemetics Metoclopramide and Domperidone Block Cardiac Voltage-Gated Na+ Channels. Anesth Analg. 2017 Jan. 124(1):52-60.

[2]. Reddymasu SC, et al. Domperidone: review of pharmacology and clinical applications in gastroenterology. Am J Gastroenterol. 2007;102(9):2036-2045.

[3]. Champion MC, et al. Domperidone, a new dopamine antagonist. CMAJ. 1986;135(5):457-461.

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