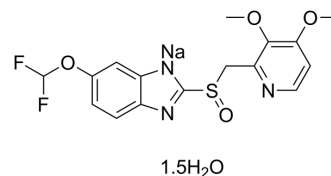


Pantoprazole sodium hydrate

Cat. No.:	HY-17507B
CAS No.:	164579-32-2
Molecular Formula:	C ₁₆ H ₁₇ F ₂ N ₃ NaO _{5.5} S
Molecular Weight:	432.37
Target:	Proton Pump; Autophagy; Apoptosis; Bacterial
Pathway:	Membrane Transporter/Ion Channel; Autophagy; Apoptosis; Anti-infection
Storage:	4°C, sealed storage, away from moisture and light * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

H₂O : 250 mg/mL (578.21 mM; Need ultrasonic)
DMSO : 100 mg/mL (231.28 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	2.3128 mL	11.5642 mL	23.1283 mL
	5 mM	0.4626 mL	2.3128 mL	4.6257 mL
	10 mM	0.2313 mL	1.1564 mL	2.3128 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (5.78 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (5.78 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (5.78 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Pantoprazole sodium hydrate (BY10232 sodium hydrate) is an orally active and potent proton pump inhibitor (PPI)^[1]. Pantoprazole sodium hydrate, a substituted benzimidazole, is a potent H⁺/K⁺-ATPase inhibitor with an IC₅₀ of 6.8 μM. Pantoprazole sodium hydrate improves pH stability and has anti-secretory, anti-ulcer activities. Pantoprazole sodium hydrate significantly increased tumor growth delay combined with Doxorubicin (HY-15142)^{[3][4]}.

In Vitro

Pantoprazole sodium hydrate (BY1023 sodium hydrate; 1-10000 μM) leads to concentration-dependent increases in endosomal pH in EMT-6 and MCF7 cells^[1].

Pantoprazole sodium hydrate can block exosome release. Pantoprazole sodium hydrate inhibits the activity of V-H⁺-ATPase and impairs the ability of tumour cells (melanomas, adenocarcinomas, and lymphoma cell lines) to acidify the extracellular medium^[2]

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

In Vivo

Pantoprazole sodium hydrate (BY1023 sodium hydrate; 200 mg/kg; IP; once a week for 3 weeks) significantly increases tumor growth delay of MCF-7 xenografts combined with Doxorubicin^[1].

Pantoprazole sodium hydrate (0.3-3 mg/kg, p.o.) dose-dependently decreases both basal acid secretion in pylorus-ligated rats and the stimulated acid secretion induced by mepirizole in acute fistula rats^[4].

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

Animal Model:	Mice bearing MCF-7 or A431 xenografts ^[1]
Dosage:	200 mg/kg
Administration:	IP; once a week for 3 weeks; alone or 2 hours before Doxorubicin (6 mg/kg i.v.)
Result:	Shown even greater growth delay of MCF-7 xenografts with Doxorubicin compared with the single-dose combination. Significantly increased tumor growth delay with a single dose with Doxorubicin. There is no effect on growth delay alone.

CUSTOMER VALIDATION

- Cell Metab. 2022 Feb 7;34(3):424-440.e7.
- Nat Commun. 2023 Jul 14;14(1):4217.
- Front Oncol. 2021 Jul 7;11:660320.

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REFERENCES

[1]. Krupa J Patel, et al. Use of the proton pump inhibitor pantoprazole to modify the distribution and activity of doxorubicin: a potential strategy to improve the therapy of solid tumors. Clin Cancer Res. 2013 Dec 15;19(24):6766-76.

[2]. Huarui Zhang, et al. Advances in the discovery of exosome inhibitors in cancer. J Enzyme Inhib Med Chem. 2020 Dec;35(1):1322-1330.

[3]. W Beil, et al. Pantoprazole: a novel H⁺/K⁺-ATPase inhibitor with an improved pH stability. Eur J Pharmacol. 1992 Aug 6;218(2-3):265-71.

[4]. K Takeuchi, et al. Effects of pantoprazole, a novel H⁺/K⁺-ATPase inhibitor, on duodenal ulcerogenic and healing responses in rats: a comparative study with omeprazole and lansoprazole. J Gastroenterol Hepatol. 1999 Mar;14(3):251-7.

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

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