Rabeprazole sodium

Cat. No.: HY-B0656A

CAS No.: 117976-90-6

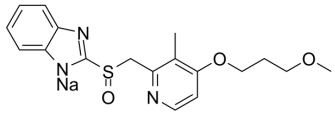
Molecular Formula: $C_{18}H_{20}N_3NaO_3S$

Molecular Weight: 381.42

Target: Proton Pump; Apoptosis; Bacterial

Pathway: Membrane Transporter/Ion Channel; Apoptosis; Anti-infection

Storage: 4°C, stored under nitrogen
* In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (262.18 mM; Need ultrasonic)
H_2O : 66.67 mg/mL (174.79 mM; ultrasonic and adjust pH to 11 with 1M NaOH)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.6218 mL	13.1089 mL	26.2178 mL
5 mM	0.5244 mL	2.6218 mL	5.2436 mL
10 mM	0.2622 mL	1.3109 mL	2.6218 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 (5.45 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.45 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.45 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Rabeprazole sodium (LY307640 sodium) is a second-generation proton pump inhibitor (PPI) that irreversibly inactivates gastric H^+/K^+-ATPase. Rabeprazole sodium induces apoptosis. Rabeprazole sodium acts as an uridine nucleoside ribohydrolase (UNH) inhibitor with an IC_{50} of 0.3 μM. Rabeprazole sodium can be used for the research of gastric ulcerations and gastroesophageal reflux[1][2][3].

IC_{50} & Target

Pump inhibitor (PPI)[1]
IC50: 0.3 μM (UNH)[1]
H^+/K^+-ATPase[2]

	Apoptosis[2]
In Vitro	Rabeprazole attenuates the cell viability of the human gastric cancer cells following treatment with 0.2 mM for 16 hours[2]. Rabeprazole completely inhibits the phosphorylation of ERK1/2 in the MKN-28 cells. The gastric cancer cell line MKN-28 is cultured in acidic culture media (pH 5.4) for 2 hours. Pretreatment with Rabeprazole (0.2 mM for 2 hours) leads to strong inhibition of ERK 1/2 phosphorylation in the MKN-28 cells[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	Three gastric cancer cell lines KATO III, MKN-28 and MKN-45
Concentration:	0.2 mM
Incubation Time:	16 hours
Result:	Treatment resulted in the attenuation of viability in all cancer cell lines tested, the cell viability of the MKN-28 cells significantly decreased compared with the KATO III and MKN-45 cells, respectively.

Western Blot Analysis[2]

Cell Line:	Three gastric cancer cell lines (KATO III, MKN-28 and MKN-45)[2]
Concentration:	0.2 mM
Incubation Time:	Pretreatment for 2 hours
Result:	Led to strong inhibition of ERK 1/2 phosphorylation in the MKN-28 cells, but a similar effect was not observed in the KATO III and MKN-45 cells.

In Vivo

Rabeprazole (10 mg/kg; P.O.; every 48 h for 18 weeks) course leads to a significant decline in bone mineral density (BMD) and decreases serum calcium level and produces secondary hyperparathyroidism in female mice[3].

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

Animal Model:	Female Swiss albino mice (body weight equals 18-26 g)[3]
Dosage:	10 mg/kg
Administration:	Oral administration; every 48 h for 18 weeks
Result:	Showed significantly lower serum calcium level compared to the vehicle treated group (5.5±2.07 vs. 9.68±2.77).

CUSTOMER VALIDATION

- Nat Commun. 2023 Jul 14;14(1):4217.
- Front Immunol. 2022 Jun 21;13:895869.

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REFERENCES

[1]. Tara A Shea, et al. Identification of Proton-Pump Inhibitor Drugs That Inhibit Trichomonas Vaginalis Uridine Nucleoside Ribohydrolase. Bioorg Med Chem Lett. 2014 Feb 15;24(4):1080-4.

[2]. Aly A M Shaalan, et al. Supplement With Calcium or Alendronate Suppresses Osteopenia Due to Long Term Rabeprazole Treatment in Female Mice: Influence on Bone TRAP and Osteopontin Levels. Front Pharmacol. 2020 May 13;11:583.

[3]. Mengli Gu, et al. Rabeprazole Exhibits Antiproliferative Effects on Human Gastric Cancer Cell Lines. Oncol Lett. 2014 Oct;8(4):1739-1744.

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