

Product Data Sheet

Cholestyramine

 Cat. No.:
 HY-104081

 CAS No.:
 11041-12-6

 Target:
 Others

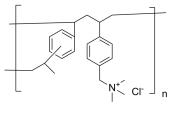
Pathway: Others

Storage: Powder -20°C 3 years

4°C 2 years

In solvent -80°C 6 months

-20°C 1 month



SOLVENT & SOLUBILITY

In Vitro 1M HCl : < 1 mg/mL (insoluble)

DMSO: < 1 mg/mL (insoluble or slightly soluble)

H₂O: < 0.1 mg/mL (insoluble)

In Vivo 1. Add each solvent one by one: 0.5% CMC-Na/saline water

Solubility: 60 mg/mL (Infinity mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Cholestyramine (Colestyramine) is a bile acid binding resin and can inhibit intestinal bile acid absorption which results in the increasing bile acid synthesis from cholesterol.

In Vitro

Cholestyramine (0.1-50 μ g/mL) produced the most dramatic results after a 24-hour exposure; an efflux rate of 65% compared with control cells. Cholestyramine is an anion-exchange resin and is insoluble in water. alcohol, chloro-form, and ether. For the assay, cholestyramine is initially wetted with a small amount of DMSO further diluting with media. A blank sample prepared with dimethylsulfoxide DMSO without cholestyramine displayed no differences from the control samples [3].

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

In Vivo

Cholestyramine is a bile acid binding resin and can inhibit intestinal bile acid absorption which results in the? increasing bile acid synthesis from cholesterol [1]. Results reveal that GSPE treatment alone, and co-administration with Cholestyramine, regulate BA, cholesterol and TG metabolism differently compare to Cholestyramine administration alone. Notably, GSPE decreases intestinal apical sodium-dependent bile acid transporter (Asbt) gene expression, while Cholestyramine significantly induces expression. Administration with GSPE or Cholestyramine robustly induces hepatic BA biosynthetic gene expression, especially cholesterol 7α -hydroxylase (Cyp7a1), compare to control, while co-administration further enhances expression. Treatment with Cholestyramine induces both intestinal and hepatic cholesterologenic gene expression, while co-administration with GSPE attenuates the Cholestyramine-inducing increase in the liver but not in the intestine. Cholestyramine also induces hepatic lipogenic gene expression, which is attenuated by co-administration with GSPE[2].

PROTOCOL

Animal Administration [2]

Mice are purchased at 7 weeks of age and allowed to acclimate for one week. At 8-weeks of age the mice are given either a control or a 2% Cholestyramine-supplementing diet for 4 weeks (n=18 per group). Body weight for each mouse is recorded weekly. After 4 weeks, the mice in each group are randomly assigned to one of two treatment groups and orally gavaged with either vehicle (water) or GSPE (250 mg/kg) and terminated 14 hours later (n=9 per experimental group). The four treatment groups are as follows: 1. CON: Control diet for 4 weeks following by oral gavage with vehicle (water) for 14 hrs; 2. GSPE: Control diet for 4 weeks following by oral gavage with vehicle for 14 hrs; 3.Cholestyramine 2% Cholestyramine-supplementing diet for 4 weeks following by oral gavage with vehicle for 14 hrs; and 4. Cholestyramine+GSPE: 2% cholestyramine-supplementing diet for 4 weeks following by oral gavage with 250 mg/kg GSPE for 14 hrs. Blood is collected from the orbital plexus under isoflurane anesthesia, and intestines and livers are snap-frozen in liquid nitrogen and stored at -80°C until use. At the start of the 14 hr experiment mice are placed into clean cages, and feces are manually collected at the end of the study^[2].

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CUSTOMER VALIDATION

- Microbiome. 2023 May 2;11(1):96.
- Cellulose. 27, 4019-4028 (2020).
- J Appl Toxicol. 2022 Nov 3.
- SSRN. 2023 Aug 28.

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REFERENCES

- [1]. Maugeais C, et al. rHDL administration increases reverse cholesterol transport in mice, but is not additive on top of ezetimibe or cholestyramine treatment. Atherosclerosis. 2013 Jul;229(1):94-101.
- [2]. Rebecca M. Heidker, et al. Grape Seed Procyanidins and Cholestyramine Differentially Alter Bile Acid and Cholesterol Homeostatic Gene Expression in Mouse Intestine and Liver. PLoS One. 2016; 11(4): e0154305.
- [3]. J M Pruckler, et al. Use of a human microvascular endothelial cell line as a model system to evaluate cholesterol uptake. Pathobiology. 1993;61(5-6):283-7.

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

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