

Gut restricted-7

Chemical Properties

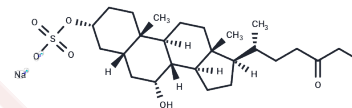
CAS No. : 2553218-46-3

Formula: C₂₅H₄₀FNaO₆S

Molecular Weight: 510.64

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



Biological Description

Description	Gut restricted-7 (GR-7) is a potent, covalent, orally administered, gut-selective bile salt hydrolase (BSH) inhibitor with tissue specificity that localizes to the gut. Gut restricted-7 reduces BSH activity in gut bacteria and decreases levels of unconjugated bile acids in mouse feces, making it suitable for research into metabolism, inflammation, and intestinal diseases.
Targets(IC50)	Antibacterial, Potassium Channel
In vitro	Methods: Six human gut symbionts (3 Gram-negative: <i>B. theta</i> , <i>B. fragilis</i> , <i>B. vulgatus</i> ; 3 Gram-positive: <i>L. plantarum</i> , <i>C. perfringens</i> , <i>B. adolescentis</i>). Pre-log phase bacteria were co-incubated with Gut restricted-7 (100 μM) and mixed bile acid substrate (100 μM), monitoring deglycolysis activity over 21 hours. Results: Gut restricted-7 nearly completely inhibited bile acid deconjugation activity in all 6 strains. [1]
In vivo	Methods: Conventional mice were administered a single oral dose of Gut restricted-7 (10 mg/kg) or a solvent control. Feces were collected 30 hours after dosing, and BSH activity and bile acid composition were measured. Results: Levels of unconjugated bile acids in feces decreased, while the proportion of conjugated bile acids increased, confirming in vivo target inhibition and alterations in the bile acid profile. [1]

Solubility Information

Solubility	DMSO: 250 mg/mL (489.58 mM), Sonication is recommended. H ₂ O: 100 mg/mL (195.83 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (9.79 mM), Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.9583 mL	9.7916 mL	19.5833 mL
5 mM	0.3917 mL	1.9583 mL	3.9167 mL
10 mM	0.1958 mL	0.9792 mL	1.9583 mL
50 mM	0.0392 mL	0.1958 mL	0.3917 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Adhikari AA, et al. Development of a covalent inhibitor of gut bacterial bile salt hydrolases. Nat Chem Biol. 2020 Mar;16(3):318-326. doi: 10.1038/s41589-020-0467-3.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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