Sucrose

Cat. No.: HY-B1779

CAS No.: 57-50-1

Molecular Formula: $C_{12}H_{22}O_{11}$

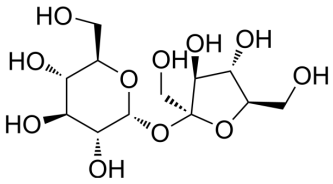
Molecular Weight: 342.3

Target: Endogenous Metabolite

Pathway: Metabolic Enzyme/Protease

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (292.14 mM; Need ultrasonic and warming)
DMSO : 100 mg/mL (292.14 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.9214 mL	14.6071 mL	29.2141 mL
5 mM	0.5843 mL	2.9214 mL	5.8428 mL
10 mM	0.2921 mL	1.4607 mL	2.9214 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (292.14 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.30 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.30 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.30 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Sucrose (D-(+)-Saccharose) is a disaccharide which is composed of two monosaccharides, glucose and fructose. Sucrose can be applied in some animal models, including metabolic disease, obesity, diet on preference, and diabetes, et al[1].

IC_{50} & Target

Human Endogenous Metabolite

In Vivo	Sucrose is a disaccharide which is composed of two monosaccharides, glucose and fructose. Compare to chow-feeding, high-energy (HE)-feeding results in an overall decreased preference for Sucrose solutions in both strains. Specifically, obesity-prone (OP) rats prefer 0.3 M and 1.0 M Sucrose solutions less during HE-feeding relative to chow-feeding (P=0.046 and P=0.012, respectively). As well, obesity-resistant (OR) rats exhibit decreased preferences for 0.01 M, 0.03 M, and 1.0 M Sucrose when HE-fed compare to chow-fed counterparts (P<0.0001, P=0.043, and P=0.013, respectively). Chow-fed OP rats consume significantly less of 0.03 and 0.1 M Sucrose solutions relative to OR animals (P<0.0001, for both) while HE-fed OP rats consume less of a 0.1 M Sucrose solution only (P<0.05), compare to HE-fed OR rats[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [1]	A total of 66 male 8-wk-old Sprague-Dawley obesity-prone (OP) and obesity-resistant (OR) rats (n = 38 per each phenotype), weighing 275 g and 210 g respectively, are used in this study. After recovery and attaining pre-surgical weights, rats undergo three training trials of 60-min sham feeding sessions with 0.03 M Sucrose solution. During testing, rats are briefly deprived of water (0900 to 1600 h) but not food, and are tested for 1 h (1400 to1500 h) sham intake of 0.03 M Sucrose solution until a stable baseline is achieved. Afterwards, rats are sham fed one of three Sucrose solutions (0.03, 0.3, and 1.0 M) in random order, every other day, with each concentration tested at least twice. Sucrose intake is individually recorded every 5 min for 60 min[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Autophagy. 2022 Nov 30.
- Food Chem. 2022: 134807.
- Front Immunol. 2021 Aug 2;12:686846.
- Front Immunol. 02 August 2021.
- Mol Biotechnol. 2023 Mar 21.

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REFERENCES

[1]. Duca FA, et al. Effect of diet on preference and intake of sucrose in obese prone and resistant rats. PLoS One. 2014 Oct 20;9(10):e111232.

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