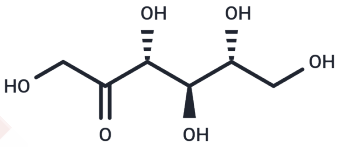
Data Sheet (Cat.No.T203714)

TargetMol

D-Psicose

Chemical Properties



CAS No. : 551-68-8

Formula: C6H12O6

Molecular Weight: 180.16

Storage: Keep away from direct sunlight
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	D-Psicose (D-Allulose) is an orally active rare sugar. It effectively inhibits p38-MAPK phosphorylation and MCP-1 expression, while blocking the AGEs/RAGE/NF-kappaB signaling pathway. D-Psicose demonstrates significant bioactivity in research involving pancreatic beta-islet protection, hyperglycemia improvement, lipid metabolism regulation, and the mitigation of high-fat diet-induced non-alcoholic fatty liver disease (NAFLD).
Targets(IC50)	NF-κB,Advanced Glycation End Products,p38 MAPK
In vitro	In experiments with human umbilical vein endothelial cells (HUVECs), cells were treated with D-Psicose at concentrations of 5.6–22.4 mM for 3 to 5 days. The results showed that D-Psicose significantly downregulated high-glucose-induced MCP-1 mRNA and protein expression in a dose-dependent manner by inhibiting p38-MAPK phosphorylation; however, no significant effect was observed at the lower concentration of 2.8 mM. This experiment confirmed that D-Psicose inhibits the expression of inflammatory factors and protects the vascular endothelium in vascular endothelial cells [1].
In vivo	In models including OLETF rats, db/db mice, and high-fat diet-induced NAFLD mice, D-Psicose was administered orally via drinking water (5%) or gavage (200 mg/kg) for 4 to 13 weeks. Results showed that D-Psicose effectively attenuated pancreatic beta-islet fibrosis, preserved islet structure, and improved insulin resistance and glucose tolerance. Furthermore, D-Psicose significantly reduced hepatic triglyceride and total cholesterol levels, modulated gut microbiota (e.g., increasing Akkermansia abundance), and mitigated hepatic inflammation and oxidative stress damage by inhibiting the AGEs/RAGE/NF-kappaB pathway [2][3][4].

Solubility Information

Solubility	H2O: 100 mg/mL (555.06 mM),Sonication is recommended. DMSO: 100 mg/mL (555.06 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.5506 mL	27.7531 mL	55.5062 mL
5 mM	1.1101 mL	5.5506 mL	11.1012 mL
10 mM	0.5551 mL	2.7753 mL	5.5506 mL
50 mM	0.111 mL	0.5551 mL	1.1101 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

Murao K, et al. D-Psicose inhibits the expression of MCP-1 induced by high-glucose stimulation in HUVECs. Life Sci. 2007 Jul 26;81(7):592-9.
Hossain A, et al. Rare sugar D-psicose protects pancreas β-islets and thus improves insulin resistance in OLETF rats. Biochem Biophys Res Commun. 2012 Sep 7;425(4):717-23.
Baek SH, et al. D-psicose, a sweet monosaccharide, ameliorate hyperglycemia, and dyslipidemia in C57BL/6J db/db mice. J Food Sci. 2010 Mar;75(2):H49-53.
Tan J, et al. D-Psicose mitigates NAFLD mice induced by a high-fat diet by reducing lipid accumulation, inflammation, and oxidative stress. Front Nutr. 2025 May 27;12:1574151.
Zeng Y, et al. Dietary D-psicose, a rare sugar, shows no modifying effects in a medium-term liver carcinogenesis bioassay in F344 male rats. Journal of toxicologic pathology, 2005, 18(2): 85-88.