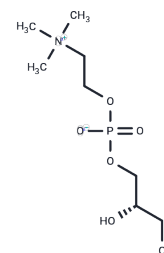


Glycerophosphocholine

Chemical Properties

CAS No. :	4217-84-9
Formula:	C ₈ H ₂₀ NO ₆ P
Molecular Weight:	257.22
Storage:	Keep away from moisture Powder: -20°C for 3 years In solvent: -80°C for 1 year <small>Actual storage temperature shall be subject to the COA.</small>



Biological Description

Description	Glycerophosphocholine is a naturally occurring, water-soluble source of choline. As a precursor for the biosynthesis of brain phospholipids, glycerophosphocholine efficiently crosses the blood-brain barrier and increases the availability of acetylcholine in neural tissue. Glycerophosphocholine is used in research on neurodegenerative diseases such as Alzheimer's disease and dementia. It is also a potential biomarker for breast cancer.
Targets(IC50)	Endogenous Metabolite
In vitro	<p>Methods: Caco-2 cells were seeded in Transwell chambers and cultured for 14 days to form a tight monolayer (TEER = 2234 ± 201 Ω·cm²). Different concentrations of Glycerophosphocholine (100 μM, 300 μM, 1 mM) were added to either the apical or basolateral side, After 20 hours of incubation, the apical medium, basal medium, and cell lysates were collected, and the concentrations of Glycerophosphocholine, choline, and betaine were quantified by LC-MS/MS.</p> <p>Results: Following the addition of Glycerophosphocholine to the apical side, the concentrations of choline on both the apical and basal sides increased significantly in a dose-dependent manner. [1]</p>
In vivo	<p>Methods: Six-week-old male C57BL/6J mice were administered Glycerophosphocholine (500 mg/kg) via oral gavage. Blood samples were collected from the tail vein at 0, 0.5, 1, 3, 6, and 10 hours post-administration, and the concentrations of TMAO, Glycerophosphocholine, choline, and betaine in the blood were quantified by LC-MS/MS.</p> <p>Results: Blood concentrations of Glycerophosphocholine and choline increased significantly as early as 0.5 hours post-administration (p < 0.001); TMAO and betaine concentrations peaked between 3 and 6 hours (p < 0.01), confirming that Glycerophosphocholine is rapidly metabolized into choline and subsequently into TMAO. [1]</p>

Solubility Information

Solubility	H ₂ O: 2 mg/mL (7.78 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.8877 mL	19.4386 mL	38.8772 mL
5 mM	0.7775 mL	3.8877 mL	7.7754 mL
10 mM	0.3888 mL	1.9439 mL	3.8877 mL
50 mM	0.0778 mL	0.3888 mL	0.7775 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

Chen S, et al. Role of Gpcpd1 in intestinal alpha-glycerophosphocholine metabolism and trimethylamine N-oxide production. *J Biol Chem.* 2024;300(12):107965.

Moestue SA, et al. Glycerophosphocholine (GPC) is a poorly understood biomarker in breast cancer. *Proc Natl Acad Sci U S A.* 2012 Sep 18;109(38):E2506; author reply E2507.

Kawamura T, et al. Glycerophosphocholine enhances growth hormone secretion and fat oxidation in young adults. *Nutrition.* 2012;28(11-12):1122-1126.

Walter A, et al. Glycerophosphocholine is elevated in cerebrospinal fluid of Alzheimer patients. *Neurobiol Aging.* 2004 Nov-Dec;25(10):1299-303.

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