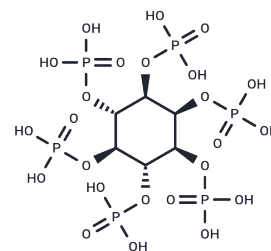


Phytic acid

Chemical Properties

CAS No. :	83-86-3
Formula:	C ₆ H ₁₈ O ₂₄ P ₆
Molecular Weight:	660.04
Appearance:	no data available
Storage:	Powder: -20°C for 3 years In solvent: -80°C for 1 year



Biological Description

Description	Phytic acid (Fytic Acid) is a complexing agent for removal of traces of heavy metal ions. It acts also as a hypocalcemic agent.
Targets(IC50)	Endogenous Metabolite,Xanthine Oxidase
In vitro	Phytic acid, a major phosphorus storage compound of most seeds and cereal grains, contributes about 1 to 7% of their dry weight. It may account for more than 70% of the total kernel phosphorus. Phytic acid has the strong ability to chelate multivalent metal ions, especially zinc, calcium, and iron. The binding can result in very insoluble salts that are poorly absorbed from the gastrointestinal tract, which results in poor bioavailability of minerals. Phytic acid is also considered to be a natural antioxidant and is suggested to have potential functions of reducing lipid peroxidation and as a preservative in foods [1]. Phytic acid inhibits the formation of uric acid from xanthine with an IC ₅₀ of about 30 mM. The generation of the superoxide is greatly affected by phytic acid; the IC ₅₀ is about 6 mM, indicating that the superoxide generating domain of XO is more sensitive to phytic acid[2]. There has been observed an inhibition of tumor growth and induction of cell differentiation in the presence of phytic acid in a few cancer cell lines including colon, nipple, breast, prostate, cervix, liver, pancreas, melanoma and glioblastoma[3].
In vivo	Phytic acid has a neuroprotective effect in MPTP-induced PD model and the neuroprotection is correlated with its anti-inflammatory effect which may be associated with suppression of pathways that involved in NF-κB and p-ERK. Phytic acid significantly inhibits MPTP-induced dopaminergic cell loss in the substantia nigra (SN). Moreover, using immunohistochemistry method and quantitative polymerase chain reaction (qPCR), microglial activation and inducible nitric oxide synthase (iNOS) are found to be markedly repressed by phytic acid[4].

Solubility Information

Solubility	DMSO: 55 mg/mL (83.33 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	1.5151 mL	7.5753 mL	15.1506 mL
5 mM	0.303 mL	1.5151 mL	3.0301 mL
10 mM	0.1515 mL	0.7575 mL	1.5151 mL
50 mM	0.0303 mL	0.1515 mL	0.303 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.

Reference

Zhou JR, et al. Phytic acid in health and disease. Crit Rev Food Sci Nutr. 1995 Nov;35(6):495-508.

Muraoka S, et al. Inhibition of xanthine oxidase by phytic acid and its antioxidative action. Life Sci. 2004 Feb 13;74(13):1691-700.

Nawrocka-Musial D, et al. Phytic acid--anticancer nutraceutical. Pol Merkur Lekarski. 2012 Jul;33(193):43-7.

Lv Y, Zhang Z, Hou L, et al. Phytic acid attenuates inflammatory responses and the levels of NF- κ B and p-ERK in MPTP-induced Parkinson's disease model of mice[J]. Neuroscience Letters, 2015, 597:132-136.

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