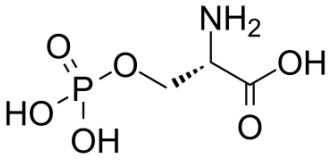
O-Phospho-L-serine

Cat. No.:	HY-15129
CAS No.:	407-41-0
Molecular Formula:	$C_3H_8NO_6P$
Molecular Weight:	185.07
Target:	mGluR; Endogenous Metabolite
Pathway:	GPCR/G Protein; Neuronal Signaling; Metabolic Enzyme/Protease
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro	H_2O : < 0.1 mg/mL (insoluble) DMSO : < 1 mg/mL (insoluble or slightly soluble)

BIOLOGICAL ACTIVITY

Description	O-Phospho-L-serine is the immediate precursor to L-serine in the serine synthesis pathway, and an agonist at the group III mGluR receptors (mGluR4, mGluR6, mGluR7, and mGluR8); O-Phospho-L-serine also acts as a weak antagonist for mGluR1 and a potent antagonist for mGluR2[1].			
IC_{50} & Target	Human Endogenous Metabolite	mGluR1	mGluR2	mGluR4
	mGluR6	mGluR7	mGluR8	
In Vitro	O-Phospho-L-serine (l-SOP) weakly binds to mGluR1, and antagonizes the effects of l-glutamate. l-SOP activates the group III receptors (mGluR4, mGluR6, mGluR7, and mGluR8), but mGluR7 has much lower affinity for l-SOP than the other group III receptors and also displays lower efficacy for both ligands[1]. O-Phospho-L-serine (l-SOP) generates enhanced intracellular calcium responses in mGluR4 transfected cells. l-SOP inhibits the l-glutamate mediated mGluR1 response, with a K_i of 1 mM; l-SOP displays a substantially more potent inhibition of mGluR2 activation, with a K_i of 1 μM, three orders-of-magnitude more potent than for mGluR1. l-SOP induces membrane potential changes in HEK/TRPC4 cells transfected with mGluR4 or mGluR6. l-SOP induces TRPC4β activation mediated by $G\alpha_{i/o}$ proteins[2]. O-Phospho-L-serine (L-SOP) inhibits Müller glia proliferation, without affecting light-induced photoreceptor cell death. L-SOP disrupts Müller glia proliferation subsequent to or in parallel with the activation of ascl1a and stat3 expression in the light-damaged retina. L-SOP inhibits cone cell regeneration in the light-damaged retina[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.			

REFERENCES

[1]. Kang HJ, et al. Determinants of endogenous ligand specificity divergence among metabotropic glutamate receptors. J Biol Chem. 2015 Jan 30;290(5):2870-8.

[2]. Kang HJ, et al. Selectivity and evolutionary divergence of metabotropic glutamate receptors for endogenous ligands and G proteins coupled to phospholipase C or TRP channels. J Biol Chem. 2014 Oct 24;289(43):29961-74.

[3]. Bailey TJ, et al. The inhibitor of phagocytosis, O-phospho-L-serine, suppresses Müller glia proliferation and cone cell regeneration in the light-damaged zebrafish retina. Exp Eye Res. 2010 Nov;91(5):601-12.

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