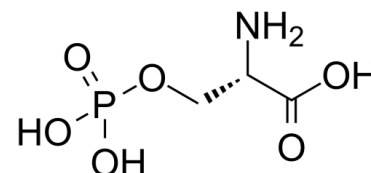


Data Sheet

Product Name:	O-Phospho-L-serine
Cat. No.:	CS-7902
CAS No.:	407-41-0
Molecular Formula:	C ₃ H ₈ NO ₆ P
Molecular Weight:	185.07
Target:	Endogenous Metabolite; mGluR
Pathway:	GPCR/G Protein; Metabolic Enzyme/Protease; Neuronal Signaling
Solubility:	H ₂ O : ≥ 16.66 mg/mL (90.02 mM)



BIOLOGICAL ACTIVITY:

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**. **In Vitro:** O-Phospho-L-serine (I-SOP) weakly binds to mGluR1, and antagonizes the effects of L-glutamate. I-SOP activates the group III receptors (mGluR4, mGluR6, mGluR7, and mGluR8), but mGluR7 has much lower affinity for I-SOP than the other group III receptors and also displays lower efficacy for both ligands^[1]. O-Phospho-L-serine (I-SOP) generates enhanced intracellular calcium responses in mGluR4 transfected cells. I-SOP inhibits the L-glutamate mediated mGluR1 response, with a K_i of 1 mM; I-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. I-SOP induces membrane potential changes in HEK/TRPC4 cells transfected with mGluR4 or mGluR6. I-SOP induces TRPC4β activation mediated by Gα_{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].

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.

CAIndexNames:

L-Serine, O-phosphono-

SMILES:

OP(OC[C@H](C(=O)=O)N)(O)=O

Caution: Product has not been fully validated for medical applications. For research use only.

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