Product Data Sheet

Product Name: O-Phospho-D-Serine
Cat. No.: GC11966

Chemical Properties

Cas. No.	73913-63-0		
Chemical Name	O-phosphono-D-serine		
SMILES	O=C(O)[C@H](N)COP(O)(O)=O		
Formula	$C_3H_8NO_6P$	M.Wt	185.1
Solubility	≥ 18.5mg/mL in Water with ultrasonic and warming	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	O-Phospho-D-Serine		

Background

IC50: 1,260 μM for the metabotropic glutamate receptor mGluR4

O-Phospho-D-Serine is a weak agonist of the metabotropic glutamate receptor mGluR4.

mGluR4 receptors, a member of the G protein-linked family of receptors for glutamate, are negatively coupled to cAMP. Its expression is highest in granule cells of the cerebellum that send parallel fibers that synapse with Purkinje cell dendrites.

In vitro: The affinity of L-serine-O-phosphate was examined in a baby hamster kidney cells expressing subtype mGluR1 or mGluR4 of the mGluR family. Results showed that both L-serine-O-phosphate or O-Phospho-D-Serine at 3 mM did not inhibit PI-hydrolysis as stimulated by 10 μM glutamate in BHK cells expressing mGluR1. However, L-serine-O-phosphate was a potent agonist at the mGluR4 subtype, which was negatively coupled to adenylate cyclase, while O-Phospho-D-Serine was found to be weakly active [1]. In another study, to test whether phosphatidylserine was recognized by amebae, calcium-

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treated cells were incubated with annexin V prior to adherence to or ingestion by E. histolytica. It was found that the coreceptor could be inhibited by phospho-l-serine and to a lesser extent by O-Phospho-D-Serine but not by phospho-l-threonine, which was consistent with the coreceptor functioning in the adherence and ingestion of erythrocytes via recognition of phosphatidylserine [2].

In vivo: Up to now, there is no animal in vivo data reported.

Clinical trial: So far, no clinical study has been conducted.

References:
[1] Thomsen, C. , and Suzdak, P.D. Serine-O-phosphate has affinity for type IV, but not type I, metabotropic glutamate receptor. NeuroReport 4, 1099-1101 (1993).
[2] Boettner, D. R.,Huston, C.D.,Sullivan, J.A., et al. Entamoeba histolytica and Entamoeba dispar utilize externalized phosphatidylserine for recognition and phagocytosis of erythrocytes. Infection and Immunity 73(6), 3422-3430 (2005).