

Product Data Sheet

Product Name: Phosphatidylserine

Cat. No.: GC19794

Chemical Properties

Cas. No. 51446-62-9

Formula

M.Wt

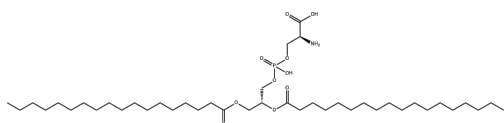
Solubility DMSO : 3.12 mg/mL (3.94 mM;
ultrasonic and warming and adjust
pH to 3 with HCl and heat to 60°C)

Storage -20°C

General For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the
tips ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Evaluation sample solution : ship with blue ice All other available size: ship with RT , or
Condition blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines CHO-K1 cells

Cells were plated in 96-well plates at 1×10^4 cells/well in 0.1mL of medium.

After 2 days, cells were incubated with various concentrations of

Phosphatidylserine (50, 100, 200, and 300µM) for 24h at 37°C. Media were then

Preparation Method changed to a medium containing 300µg/mL XTT reagent (sodium 3'-[1-(phenylaminocarbonyl)-3,4-tetrazolium]-bis(4-methoxy-6-nitro), and the cells were incubated for an additional 4h. Viable cell numbers were estimated by measuring A₄₉₂.

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

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Reaction Conditions 50, 100, 200, and 300µM; 24h

Applications Phosphatidylserine treatment can induce cell death in a dose-dependent manner.

Animal experiment [2]:

Animal models Male Wistar rats

Preparation Method Rats were placed in a glass aquarium (20 × 20 × 40 cm³) containing cold water (24 ± 1°C) to a depth of 15cm for 15min in the training session. After this procedure, the rats received an injection of Phosphatidylserine (50, 100 and 200mg/kg). These injections were repeated 1 and 8h after training and 1h before the test. In the test session (24h after training), the rats were submitted to the swimming test for 5min and the IT was measured.

Dosage form 50, 100, and 200mg/kg; 3 times; i.p.

Applications Phosphatidylserine significantly reduced IT in rats at all dose levels.

Background

Phosphatidylserine is a phospholipid that is crucial for the structure and function of cell membranes^[1]. Abundant in the brain, Phosphatidylserine protects cells, facilitates communication, and is involved in processes such as memory, attention, stress response, and serves as a signal for cellular clearance during apoptosis (programmed cell death)^[2]. Phosphatidylserine is commonly used as a dietary supplement in research related to age-related cognitive decline, overall brain health, and conditions such as Alzheimer's disease^[3,4].

In vitro, treatment of stallion sperm with Phosphatidylserine-containing liposomes (final

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Phosphatidylserine concentration of 260 μ M) for 15min, followed by cooling to 5°C in diluents with or without egg yolk/skim milk, significantly increased sperm motility after cooling compared to the untreated control group (42% vs 23%)^[5]. Treatment of CHO-K1 cells with Phosphatidylserine (50, 100, 200, 300 μ M) for 24h induced cell death in a dose-dependent manner and caused cells to become rounded and shrink in volume^[6].

In vivo, oral administration of Phosphatidylserine (50mg/kg/day) to aged rats with cognitive impairment for 7-12 weeks significantly reduced the mean escape latency in the Morris water maze test and resulted in more accurate spatial orientation in the spatial probe trial^[7]. In rats, intraperitoneal injection of Phosphatidylserine (50, 100, 200 mg/kg) administered three times (1h and 8h after training, and 1h before testing) significantly reduced immobility time (IT) in the forced swimming test conducted 24h after training across all dose groups^[8].

References:

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- [6] UCHIDA K, EMOTO K, DALEKE D L, et al. Induction of apoptosis by phosphatidylserine[J]. Journal of Biochemistry, 1998, 123(6): 1073-1078.
- [7] ZANOTTI A, VALZELLI L, TOFFANO G. Chronic phosphatidylserine treatment improves spatial memory and passive avoidance in aged rats[J]. Psychopharmacology, 1989, 99(3): 316-321.
- [8] CASTILHO J C, PERRY J C, ANDREATINI R, et al. Phosphatidylserine: an antidepressive or a cognitive enhancer?[J]. Progress in Neuro-Psychopharmacology and Biological Psychiatry, 2004, 28(4): 731-738.

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