
Product Data Sheet

Product Name: Phosphatidylglycerols (sodium salt)

Cat. No.: GC18377

Chemical Properties

Cas. No. 383907-64-0

SMILES [R]C(OC[C@@H](OC([R])=O)COP([O-])(OCC(O)CO)=O)=O.[Na+]

Formula M.Wt

Solubility Chloroform: 2 mg/ml Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C 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 **Protocol****Cell experiment [1]:**

Cell lines RAW264.7 cells

Preparation Method 5×10^4 RAW264.7 cells were seeded into each well of the XF-24 cell culture microplate and allowed to adhere. Then, 50µM Phosphatidylglycerols were added to the cells twice within 12 hours. At 24 hours, 100ng/ml Kdo2-Lipid A (KLA) was added and the cells were incubated for 24 hours. The culture medium was replaced with DMEM at pH 7.4 and the cells were cultured at 37°C for 1 hour. The oxygen consumption rate (OCR) of the cells was analyzed.

Reaction Conditions 50µM twice; 12 hours

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

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Applications Phosphatidylglycerols significantly rescued the total OCR inhibited by KLA in RAW264.7 cells.

References:

[1] Chen W W, Chao Y J, Chang W H, et al. Phosphatidylglycerol incorporates into cardiolipin to improve mitochondrial activity and inhibits inflammation[J]. Scientific reports, 2018, 8(1): 4919.

Background

Phosphatidylglycerols (sodium salt) is a phospholipid that is ubiquitous in almost all living organisms, with molecular structure features a negatively charged glycerol head group, which exists stably in the form of a sodium salt^[1]. Phosphatidylglycerols can inhibit the activation of Toll-like receptors (TLR) in the innate immune system of the lungs by microbial components, resulting in a reduction in the production of inflammatory mediators, and alleviation of lung inflammation and damage^[2]. Phosphatidylglycerols have been widely used to enhance mitochondrial function and promote skin wound healing^[3].

In vitro, Phosphatidylglycerols (50 μ M twice at 0 and 12 hours) significantly rescued the total oxygen consumption rates (OCR) and mitochondrial activity inhibited by Kdo2-Lipid A (KLA) in RAW264.7 cells^[4].

References:

[1] Wada H, Murata N. The essential role of phosphatidylglycerol in photosynthesis[J]. Photosynthesis research, 2007, 92(2): 205-215.
[2] Bollag W B, Gonzales J N. Phosphatidylglycerol and surfactant: A potential treatment for COVID-19?[J]. Medical Hypotheses, 2020, 144: 110277.

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[3] Luo Y, Vivaldi Marrero E, Choudhary V, et al. Phosphatidylglycerol to treat chronic skin wounds in diabetes[J]. *Pharmaceutics*, 2023, 15(5): 1497.

[4] Chen W W, Chao Y J, Chang W H, et al. Phosphatidylglycerol incorporates into cardiolipin to improve mitochondrial activity and inhibits inflammation[J]. *Scientific reports*, 2018, 8(1): 4919.

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