

Product data sheet



MedKoo Cat#: 414877 Name: DSPG-Na CAS: 124011-52-5 Chemical Formula: C ₄₂ H ₈₂ NaO ₁₀ P Molecular Weight: 801.0715	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

DSPG is used in FDA approved drugs. It is an anionic phospholipid derivative. DSPG has been used to form an ionic complex with amphotericin B and encapsulate it into small unilamellar liposomes with significantly reduced toxicity (AmBisome®). DSPG-Na is a lipid reagent, which is useful in drug formulation, DNA & RNA delivery.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
Chloroform	2.0	2.50

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.25 mL	6.24 mL	12.48 mL
5 mM	0.25 mL	1.25 mL	2.50 mL
10 mM	0.13 mL	0.62 mL	1.25 mL
50 mM	0.03 mL	0.13 mL	0.25 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Sha X, Guo J, Chen Y, Fang X. Effect of phospholipid composition on pharmacokinetics and biodistribution of epirubicin liposomes. *J Liposome Res.* 2012 Mar;22(1):80-8. doi: 10.3109/08982104.2011.627513. Epub 2011 Oct 24. PMID: 22022836.
2. Zhu G, Mock JN, Aljuffali I, Cummings BS, Arnold RD. Secretory phospholipase A₂ responsive liposomes. *J Pharm Sci.* 2011 Aug;100(8):3146-3159. doi: 10.1002/jps.22530. Epub 2011 Mar 31. PMID: 21455978; PMCID: PMC3196631.

In vivo study

1. Maruyama T, Sugii M, Omata D, Unga J, Shima T, Munakata L, Kageyama S, Hagiwara F, Suzuki Y, Maruyama K, Suzuki R. Effect of lipid shell composition in DSPG-based microbubbles on blood flow imaging with ultrasonography. *Int J Pharm.* 2020 Nov 30;590:119886. doi: 10.1016/j.ijpharm.2020.119886. Epub 2020 Sep 28. PMID: 32998031.
2. Benne N, van Duijn J, Lozano Vigario F, Lebourg RJT, van Veelen P, Kuiper J, Jiskoot W, Slütter B. Anionic 1,2-distearoyl-sn-glycero-3-phosphoglycerol (DSPG) liposomes induce antigen-specific regulatory T cells and prevent atherosclerosis in mice. *J Control Release.* 2018 Dec 10;291:135-146. doi: 10.1016/j.jconrel.2018.10.028. Epub 2018 Oct 23. PMID: 30365993.

7. Bioactivity

Biological target:

A phospholipid.

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In vitro activity

Three liposome formulations were investigated: HSPC:Chol (L-EPI; 5:4 molar ratio), HSPC:Chol:DSPG (D-EPI; 5:4:1 molar ratio), and HSPC:Chol:DSPG:DSPE-mPEG(2000) (S-EPI; 5:4:1:0.3 molar ratio). Small unilamellar liposomes were prepared by the modified thin-film hydration method with extrusion through polycarbonate filters, and EPI was remote loaded into liposomes by the transmembrane ammonium sulfate gradient method.

Reference: J Liposome Res. 2012 Mar;22(1):80-8. <https://pubmed.ncbi.nlm.nih.gov/22022836/>

In vivo activity

Vaccination of atherosclerotic mice on a western-type diet with DSPG-liposomes encapsulating an LDL-derived peptide antigen significantly reduced plaque formation by 50% and stabilized the plaques, and reduced serum cholesterol concentrations. These results indicate that DSPG-liposomes have potential as a delivery system in vaccination against atherosclerosis.

Reference: J Control Release. 2018 Dec 10;291:135-146. <https://pubmed.ncbi.nlm.nih.gov/30365993/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.