

Product Data Sheet

Product Name: 1,2-Dimyristoyl-rac-glycero-3-phosphocholine
Cat. No.: GA20356

Chemical Properties

Cas. No. 18656-38-7

Formula $C_{36}H_{72}NO_8P$ M.Wt 677.94

Solubility Soluble in DMSO Storage Store at $-20^{\circ}C$

General tips For obtaining a higher solubility, please warm the tube at $37^{\circ}C$ and shake it in the ultrasonic bath for a while. Stock solution can be stored below $-20^{\circ}C$ 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

1,2-Dimyristoyl-rac-glycero-3-phosphocholine [1]

- 1,2-Dimyristoyl-rac-glycero-3-phosphocholine 2mg 1:1
-
- DMSO/ 3mM
- $20 \pm 3kHz$ 450nm
- 153 C153 4-2-6-4-H-DCM

1,2-Dimyristoyl-rac-glycero-3-phosphocholine DMSO [2]

- DMSO 0% 25%

DMSO 1,2-Dimyristoyl-rac-glycero-3-phosphocholine [2]

- Slipid TIP4P/2005 DMSO General Amber Force Field
- PACKMOL DMSO
-
- 350K 1bar NPT
- 800-1000ns 1μs NPT

Caution: Product has not been fully validated for medical applications. For research use only.
Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

6. NPT

References:

[1] Kundu S, Malik S, Ghosh M, et al. A Comparative Study on DMSO-Induced Modulation of the Structural and Dynamical Properties of Model Bilayer Membranes. *Langmuir*. 2021;37(6):2065-2078.

[2] Sahu S, Garg A, Saini R, Debnath A. Interface Water Assists in Dimethyl Sulfoxide Crossing and Poration in Model Bilayer. *Langmuir*. 2024;40(11):5764-5775.

Background

1,2-Dimyristoyl-rac-glycero-3-phosphocholine, a zwitterionic phospholipid, was chosen as a simple but suitable membrane model of the human cell membrane for mimicking the neutral charge of the surface membrane of eukaryotic plasma membranes^[1]. The effect of antibiotics such as Rifabutin on human cell membrane models was assessed using multilamellar vesicles (MLVs) composed of 1,2-Dimyristoyl-rac-glycero-3-phosphocholine^[1-2]. 1,2-Dimyristoyl-rac-glycero-3-phosphocholine can serve as a model lipid membrane to study the effects of DMSO and drugs on eukaryotic cell membranes^[3-5]. 1,2-Dimyristoyl-rac-glycero-3-phosphocholine can also be used to prepare polydiacetylene (PDA)^[6]. 1,2-Dimyristoyl-rac-glycero-3-phosphocholine experiences an increase in headgroup area, enhanced membrane disorder, and increased fluidity due to DMSO, but the bilayer does not disintegrate^[4].

References:

[1] Pinheiro M, Nunes C, Caio JM, et al. The influence of rifabutin on human and bacterial membrane models: implications for its mechanism of action. *J Phys Chem B*. 2013;117(20):6187-6193.

[2] Pinheiro M, Nunes C, Caio JM, Moiteiro C, Brezesinski G, Reis S. Interactions of N'-acetyl-rifabutin and N'-butanoyl-rifabutin with lipid bilayers: a synchrotron X-ray study. *Int J Pharm*. 2013;453(2):560-568.

[3] Kundu S, Malik S, Ghosh M, et al. A Comparative Study on DMSO-Induced Modulation of the Structural and Dynamical Properties of Model Bilayer Membranes. *Langmuir*. 2021;37(6):2065-2078.

[4] Sahu S, Garg A, Saini R, Debnath A. Interface Water Assists in Dimethyl Sulfoxide

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Crossing and Poration in Model Bilayer. *Langmuir*. 2024;40(11):5764-5775.

[5] Pinheiro M, Amenitsch H, Reis S. Antituberculosis Drug Interactions with Membranes: A Biophysical Approach Applied to Bedaquiline. *Membranes (Basel)*. 2019;9(11):141.

[6] Jung YK, Park HG. Colorimetric detection of clinical DNA samples using an intercalator-conjugated polydiacetylene sensor. *Biosens Bioelectron*. 2015;72:127-132.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA