

Product Data Sheet

Product Name: Diolein
Cat. No.: GC45432

Chemical Properties

Cas. No. 25637-84-7

SMILES OC(COC(CCCCCC/C=C\CCCCCCCC)=O)COC(CCCCCC/C=C\CCCCCCCC)=O

Formula C39H72O5 M.Wt 621

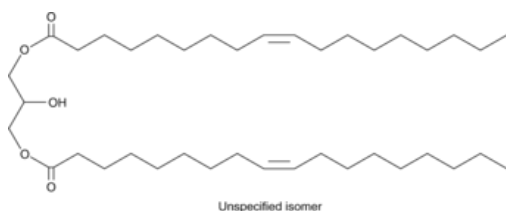
Solubility DMF: 10 mg/ml, Ethanol: 10 mg/ml, Ethanol: PBS (pH 7.2) (1:1): 0.5 mg/ml

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



Background

Diolein is a type of diacylglycerol (DAG), composed of glycerol and two oleic acid molecules linked by ester bonds. DAG could function as a second messenger in various cell signaling pathways, particularly in activating protein kinase C (PKC)^{[1][2]}. Diolein is widely used in cell biology research to study lipid signaling^[3], enzyme activity^[4], and membrane dynamics^[5], and is a very promising non-viral vector for in vivo gene delivery^[6].

References:

- [1]. McPhail LC, Clayton CC, Snyderman R. A potential second messenger role for arachidonic acid: activation of Ca²⁺-dependent protein kinase. Trans Assoc Am Physicians. 1984;97:222-31. PMID: 6242084.
- [2]. Mosior M, Epand RM. Mechanism of activation of protein kinase C: roles of diolein and

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

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phosphatidylserine. Biochemistry. 1993 Jan 12;32(1):66-75. doi: 10.1021/bi00052a010. PMID: 8418861.

[3]. Oishi K, Raynor RL, Charp PA, Kuo JF. Regulation of protein kinase C by lysophospholipids. Potential role in signal transduction. J Biol Chem. 1988 May 15;263(14):6865-71. PMID: 3360811.

[4]. Duan ZQ, Du W, Liu DH. The mechanism of solvent effect on the positional selectivity of Candida antarctica lipase B during 1,3-diolein synthesis by esterification. Bioresour Technol. 2011 Dec;102(23):11048-50. doi: 10.1016/j.biortech.2011.09.003. Epub 2011 Sep 18. PMID: 21978621.

[5]. van Gorkom LC, Nie SQ, Epand RM. Hydrophobic lipid additives affect membrane stability and phase behavior of N-monomethyldioleoylphosphatidylethanolamine. Biochemistry. 1992 Jan 28;31(3):671-7. doi: 10.1021/bi00118a006. PMID: 1731922.

[6]. Guo W, Gosselin MA, Lee RJ. Characterization of a novel diolein-based LPDII vector for gene delivery. J Control Release. 2002 Sep 18;83(1):121-32. doi: 10.1016/s0168-3659(02)00167-0. PMID: 12220844.

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