DMG-PEG 2000

Cat. No.: HY-112764

CAS No.: 160743-62-4

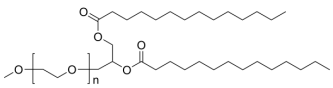
Molecular Formula: $(C_2H_4O)nC_{32}H_{62}O_5$

Molecular Weight: 2526

Target: Liposome

Pathway: Metabolic Enzyme/Protease

Storage: -20°C, sealed storage, away from moisture and light
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (49.49 mM; ultrasonic and warming and heat to 60°C)
Ethanol : 100 mg/mL (39.59 mM; Need ultrasonic)
H_2O : 16.67 mg/mL (6.60 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	0.3959 mL	1.9794 mL	3.9588 mL
	5 mM	0.0792 mL	0.3959 mL	0.7918 mL
	10 mM	0.0396 mL	0.1979 mL	0.3959 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% saline
   Solubility: ≥ 10 mg/mL (3.96 mM); Clear solution
2. Add each solvent one by one: 5% DMSO >> 95% saline
   Solubility: ≥ 5 mg/mL (1.98 mM); Clear solution
3. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (0.99 mM); Clear solution
4. Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (0.99 mM); Clear solution
5. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (0.99 mM); Clear solution
6. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (0.82 mM); Clear solution
7. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (0.82 mM); Clear solution
8. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (0.82 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	DMG-PEG 2000 is used for the preparation of liposome for siRNA delivery with improved transfection efficiency in vitro. DMG-PEG 2000 is also used for the lipid nanoparticle for an oral plasmid DNA delivery approach in vivo through a facile surface modification to improve the mucus permeability and delivery efficiency of the nanoparticles[1].
In Vitro	NP-3 (0.05-1.6 mg/mL; 24 hours) does not decrease the cytotoxicity of cells in 293T, HepG2, A549, and HeLa cell lines, but the DPPC and DMG-PEG coated nanoparticles reduce cell cytotoxicity. In addition, the transfection efficiency of DPPC/DMG-PEG/(lPEI/DNA) nanoparticles (NP-3) in 293 cells is improved, and the maximum transfection efficiency (⊠76% eGFP positive cells) is observed[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	NP-3 (oral administration; 150 μg DNA per mouse; single dose) at 12, 24, and 36 h postadministration, luciferin substrate is intraperitoneally injected to verify its permeability. NP-3 group maintains high luciferase expression in the liver, lung, and intestine areas 12-24 h post-treatment.Additionally, NP-3 exhibits 1.5 times higher signal intensity than that of NP-1 or NP-2 group from 12 to 24 h postoral administration[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Biomed Sci. 2023 Jun 28;30(1):46.
- J Biomed Sci. 2022 Dec 22;29(1):108.
- J Biomed Sci. 2022 Jul 7;29(1):49.

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REFERENCES

[1]. Tianqi Nie, et al. Surface Coating Approach to Overcome Mucosal Entrapment of DNA Nanoparticles for Oral Gene Delivery of Glucagon-like Peptide 1.ACS Appl Mater Interfaces. 2019 Aug 21;11(33):29593-29603.

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