

DODAP

Catalog Number: 14489

DESCRIPTION

DODAP (1,2-dioleoyl-3-dimethylammonium-propane) is an ionizable cationic lipid with lower cytotoxicity and high transfection efficiency. DODAP is neutral at physiological pH but acquires a positive charge inside the endosome due to the protonation of free amines when pH is lower than its pKa. The electrostatic interactions between DODAP and naturally occurring anionic lipids in endosomal membranes trigger the release of nucleic acid. These interactions promote membrane lytic non-bilayer structures to enable the intracellular delivery of nucleic acid. A common application is in nanomedicine as an ionizable lipid component of nanocarriers (lipid-polymer hybrid nanoparticles, LPNs), widely used to encapsulate bioactive molecules, including mRNA, siRNA, and plasmid DNA as a treatment for diseases.

SPECIFICATIONS

CAS Number	127512-29-2
Molecular Weight	648.05
Appearance	White to off-white powder
Storage	-20°C
Molecular Formula	C ₄₁ H ₇₇ NO ₄

PREPARATION

DODAP stock solutions can be prepared by dissolving in an organic solvent of choice. DODAP is soluble in DMSO and slightly soluble in ethanol, chloroform, and methanol.

STOCK SOLUTION PREPARATION:

MATERIALS:

- DODAP (Cat. 14489)
- Ultrapure ethanol
- Storage/formulation vial

PROTOCOL:

1. Remove DODAP from freezer (-20 °C) and thaw to room temperature.
2. Weigh 10 mg of DODAP into glass vial.
3. Add 10 mL of ethanol to the glass vial; agitate until dissolved.
4. (Optional: Incubate at 37 °C for 10 minutes to facilitate homogenization)
5. (Optional: Store stock solution at -20 °C under nitrogen or argon.

