

# DOTAP Methyl Sulfate

Catalog Number: 14475MS

## INTRODUCTION

DOTAP Methyl Sulfate is a cationic lipid used to form liposomes, lipid nanoparticles and related nanodelivery systems. It is widely used as a critical ingredient for gene therapy development.

## SPECIFICATIONS:

Synonym(s):

1,2-dioleoyl-3-trimethylammonium-propane, methyl sulfate;

DOTAP Methyl Sulfate; DOTAP MS; DOTAP

Linear Formula:  $C_{42}H_{80}NO_4 \cdot CH_3O_4S$

<b>CAS Number:</b>	144189-73-1
<b>Purity:</b>	≥ 99%
<b>Molecular Weight:</b>	774.19
<b>Storage:</b>	-20°C
<b>Appearance:</b>	white powder

## LIPOSOME SYNTHESIS PROTOCOL

### MATERIALS:

- DOTAP Methyl Sulfate (Polysciences Cat. No. 14475MS)
- Dry Nitrogen or Argon
- Purified H<sub>2</sub>O
- Chloroform

### EQUIPMENT:

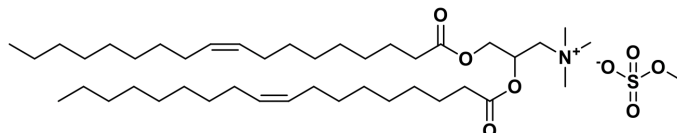
- 5 mL Glass beaker
- Glass round bottom flask
- Rotary evaporator
- Sterile PES filter (0.1-0.2 μm)
- Sterile polystyrene storage tube
- Pipette controller and tips (100 μl)
- Calibrated scale
- Laminar flow hood with vacuum
- Mini extruder, 100 nm membrane
- Block heater

### PREPARE STOCK SOLUTION:

1. Remove DOTAP MS from freezer (-20 °C) and thaw to room temperature
2. Weigh 18 mg of DOTAP MS into glass vial
3. Add 1 mL filtered H<sub>2</sub>O or 1 mL of chloroform 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)

## SAFETY

See Safety Data Sheet



## PREPARATION OF LIPID FILM:

1. Place stock solution in round bottom flask and remove solvent using a rotary evaporator
2. Evaporate chloroform with dry nitrogen flow in fume hood
3. Place vial in vacuum pump until lipid film is created (~2-3 hours)

## REHYDRATION AND EXTRUSION:

1. Add 1 mL filtered H<sub>2</sub>O to lipid film
  - a. Warm to 37 °C for 10-30 minutes for homogenization; gently vortex as needed
  - b. Sonicate 2-5x for 1 minute with 1-minute intervals in between
2. Prepare mini extruder while mixing:
  - c. Warm heating block to 30 °C
  - d. Assemble the extruder with membrane, lubricate with 1 mL filtered H<sub>2</sub>O, then discard H<sub>2</sub>O
3. Extract 1 mL of solution with glass syringe and pass through extruder 11 times
4. Store suspension in glass vial under nitrogen or argon at 4 °C until use, up to one month

## ORDERING INFORMATION

Cat. #	Description
14475MS	DOTAP Methyl Sulfate

Visit [Polysciences.com](https://www.polysciences.com) any time to place an order.

Contact us at [info@polysciences.com](mailto:info@polysciences.com) to learn about our cGMP grade DOTAP Methyl Sulfate manufactured under 21 CFR part 210, 211.