

# PRODUCT INFORMATION



## Ionizable Lipid 4

Item No. 40496

**CAS Registry No.:** 1799316-81-6  
**Formal Name:** 9,12-octadecadienoic acid, (9Z,12Z)-1,1'-[2-[[[3-(diethylamino)propoxy]carbonyl]oxy]methyl]-1,3-propanediyl] ester

**MF:** C<sub>48</sub>H<sub>85</sub>NO<sub>7</sub>

**FW:** 788.2

**Purity:** ≥95%

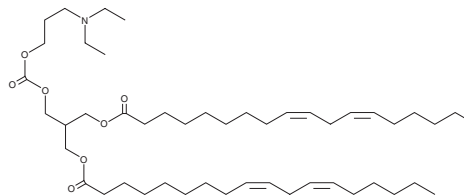
**Supplied as:** A 50 mg/ml solution in methyl acetate

**Storage:** -20°C

**Stability:** ≥4 years

**Special Conditions:** Degrades in methanol

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.



### Laboratory Procedures

Ionizable lipid 4 is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Ionizable lipid 4 is sparingly soluble (1-10 mg/ml) in ethanol.

Ionizable lipid 4 is slightly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the methyl acetate solution of ionizable lipid 4 should be diluted with the aqueous buffer of choice. Ionizable lipid 4 is slightly soluble (0.1-1 mg/ml) in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

### Description

Ionizable lipid 4 is an ionizable cationic lipid ( $pK_a = 6.1$ ) and a hydrogen peroxide-induced rearrangement product of the cationic lipid CA-lipid 5.<sup>1</sup> Charge-altering lipid nanoparticles (CALNPs) containing CA-lipid 5 and encapsulating siRNA against *EGFP* undergo hydrogen peroxide-induced removal of the phenylboronic acid groups from CA-lipid 5 in MCF-7 cells *in vitro*, generating ionizable lipid 4-containing LNPs with reduced positive charges at physiological pH, facilitating intracellular siRNA release and gene silencing. LNPs containing ionizable lipid 4 and encapsulating siRNA against *PLK1* reduce tumor volume in an MCF-7 mouse xenograft model less effectively than CALNPs containing CA-lipid 5.

### Reference

1. Yang, F., Lei, L., Wang, X., *et al.* Engineering cell-selective charge-altering lipid nanoparticles for efficient siRNA delivery *in vivo*. *CCS Chemistry* Online ahead of print, (2024).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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