

# PRODUCT INFORMATION



## C14-4

Item No. 38942

**CAS Registry No.:** 2639634-80-1  
**Formal Name:** 1,1'-[[2-[2-[4-[2-[2-[2-[bis(2-hydroxytetradecyl)amino]ethoxy]ethyl](2-hydroxytetradecyl)amino]ethyl]-1-piperazinyl]ethoxy]ethyl]imino]bis-2-tetradecanol

**Synonyms:** C14-494, Lipid B4

**MF:** C<sub>84</sub>H<sub>173</sub>N<sub>5</sub>O<sub>7</sub>

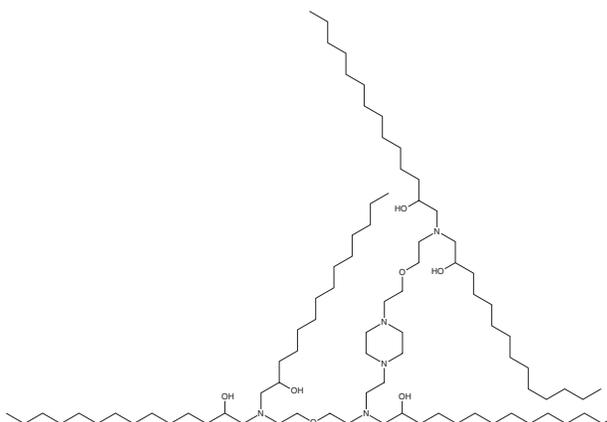
**FW:** 1,365.3

**Purity:** ≥95% (mixture of isomers)

**Supplied as:** A 10 mg/ml solution in ethanol

**Storage:** -20°C

**Stability:** ≥1 year



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

## Description

C14-4 is an ionizable cationic lipid ( $pK_a = 6.5$ ).<sup>1,2</sup> It has been used in the generation of lipid nanoparticles (LNPs) for the delivery of mRNA *in vitro* or *in vivo*.<sup>1,3</sup> LNPs containing C14-4 and encapsulating mRNA encoding chimeric antigen receptor (CAR) induce CAR expression in primary human T cells *ex vivo* to the same level as expression induced *via* electroporation, but with reduced cytotoxicity, and induce cytotoxicity in Nalm-6 acute lymphoblastic leukemia (ALL) cells *in vitro*.<sup>1</sup> LNPs containing C14-4 and the secondary bile acid deoxycholic acid (Item Nos. 20756 | 18231) and encapsulating mRNA encoding luciferase accumulate in the uterus when intraperitoneally administered and in the lungs and small intestine when intravenously administered in mice.<sup>3</sup>

## References

1. Billingsley, M.M., Singh, N., Ravikumar, P., *et al.* Ionizable lipid nanoparticle-mediated mRNA delivery for human CAR T cell engineering. *Nano Lett.* **20(3)**, 1578-1589 (2020).
2. Billingsley, M.M., Hamilton, A.G., Mai, D., *et al.* Orthogonal design of experiments for optimization of lipid nanoparticles for mRNA engineering of car T cells. *Nano Lett.* **22(1)**, 533-542 (2022).
3. Patel, S.K., Billingsley, M.M., Mukalele, A.J., *et al.* Bile acid-containing lipid nanoparticles enhance extrahepatic mRNA delivery. *Theranostics* **14(1)**, 1-16 (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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