

DC89101 | C12-4 (Lipid A-4,Lipid F3,C12-494)

Instructions for Use

C12-4 (Lipid A-4,Lipid F3) is a branched-chain ionizable cationic lipidoid that has been used in the formation of lipid nanoparticles (LNPs) for the delivery of mRNA. LNPs containing lipid A4 and encapsulating an mRNA reporter accumulate in the uterus, placenta, and ovaries, as well as to the spleen and liver, in pregnant mouse dams unlike LNPs containing the branched-chain ionizable cationic lipidoid C12-200, which primarily accumulate in the liver. Intravenous administration of LNPs containing lipid A4 and encapsulating mRNA encoding VEGF increase placental VEGFR1 levels and mean fetal blood vessel area without inducing liver damage in pregnant mouse dams.

Product information

CAS No.	Not available
Chemical Name	C12-4 (Lipid A-4,Lipid F3,C12-494)
Formula	C74H153N5O7
M.Wt	1,225.04
Purity	>95%
Storage	Original product: up to 1 year under the storage conditions stated on the vial, kept tightly sealed. Stock solutions: aliquots at -20°C, generally up to one month.
Shipping condition	Ships from Shanghai. Pure lipid is stable during ice-pack transport.

Formulation & study context

Literature values apply to the cited study only. Administration routes describe research, not clinical instructions.

A complete product-specific formulation has not been verified. No standard ratio is substituted.

N/P ratio	Not reported in the verified record
Cargo	Not available in the verified record
Administration route	Not available in the verified record
Animal model	Not available in the verified record
Formulation process	Not available in the verified record

N/P is a nitrogen-to-phosphate molar ratio. Lipid:cargo mass ratio is a different quantity and must not be used as N/P.

Stock-solution preparation table

Calculated using product-page MW: 1225.04 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	8.163 mL	1.633 mL	0.816 mL
25 mg	20.407 mL	4.081 mL	2.041 mL
50 mg	40.815 mL	8.163 mL	4.081 mL
100 mg	81.630 mL	16.326 mL	8.163 mL
250 mg	204.075 mL	40.815 mL	20.407 mL

Volume (mL) = mass (mg) × 1000 / [MW (g/mol) × concentration (mM)]. Mathematical conversions only; not measured solubility. Confirm solvent compatibility and the exact material before preparation.

Handling & storage

Provided that storage conditions are as stated on the product vial and the vial is kept tightly sealed, the product can be stored for up to 1 year.

Wherever possible, prepare and use solutions on the same day. If stock solutions must be prepared in advance, store them as aliquots in tightly sealed vials at -20°C. Generally, these will be usable for up to one month.

Before use, and prior to opening the vial, allow the product to equilibrate to room temperature for at least 1 hour.

References

- Swingle, K.L., Safford, H.C., Geisler, H.C., et al. Ionizable lipid nanoparticles for in vivo mRNA delivery to the placenta during pregnancy. J. Am. Chem. Soc. 145(8), 4691-4706 (2023).
- Kim D, Moon SJ, Han EL, Feng E, Murray AM, Wang J, Liu W, Kong G, June CH, Mitchell MJ. HITE: HIV Inspired Lipid Nanoparticle Platform for CAR T Cell Engineering. Nano Lett. 2026 Apr 21.