

DC60950 | FL0445

Instructions for Use

FL0445 is a biodegradable, multi-branched ionizable lipid featuring an ionizable amine-containing headgroup together with ester and carbonate linkages. When formulated with DOPE, cholesterol, and a PEG lipid, FL0445-LNP enabled efficient delivery of both linear mRNA and structurally constrained capped circular RNA (Cap-cirRNA). In the reported study, the optimized formulation produced substantially higher in vitro protein expression than benchmark LNPs based on MC3, SM-102, or ALC-0315 and demonstrated functional nucleic-acid delivery following intravenous, intramuscular, and subcutaneous administration in mice. The platform was also evaluated for mRNA vaccination, ASO-mediated gene silencing, pDNA delivery, and GLP-1-encoding Cap-cirRNA. FL0445-LNP induced comparatively low inflammatory cytokine responses and showed favorable single-dose tolerability in the tested mouse models, supporting its further evaluation as a versatile preclinical delivery lipid for mRNA, circular RNA, and other nucleic-acid modalities.

Product information

CAS No.	Not available
Chemical Name	FL0445
Formula	Not available
M.Wt	Not available
Purity	98%
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: not available g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	MW unavailable	MW unavailable	MW unavailable
25 mg	MW unavailable	MW unavailable	MW unavailable
50 mg	MW unavailable	MW unavailable	MW unavailable
100 mg	MW unavailable	MW unavailable	MW unavailable
250 mg	MW unavailable	MW unavailable	MW unavailable

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

Kimura S, Tsutsumi S, Nakamura N, Tsujihata S, Fangjie L, Nakashima Y, Kita S, Maenaka K, Hashiya F, Inagaki M, Abe N, Kimura Y, Abe H. A branched ionizable lipid nanoparticle platform for versatile in vivo delivery of nucleic acids: Validation from mRNA to capped circular RNA. Cell Biomaterials.2026; article 100555. <https://doi.org/10.1016/j.celbio.2026.100555>