

DC67315 | Lipid AA15

Instructions for Use

The AA15 lipid, an amino acid-derived ionizable lipid, integrates a carboxylic acid-containing headgroup and biodegradable branched ester tails (R2) to enhance mRNA delivery. Optimized as AA15V LNP, it exhibits a hydrodynamic diameter of 102.3 ± 4.1 nm, low polydispersity (PDI <0.15), and slightly positive zeta potential (+4–6 mV), enabling efficient tumor-targeted delivery. With a pKa ~6.1–6.4, AA15V ensures protonation in acidic endosomes, promoting mRNA release. It achieves >85% mRNA encapsulation efficiency, critical for stable saRNA delivery. In vitro, AA15V LNP-sSE-SCTs induced sustained SE-SCT expression (69% H-2Kb+ β 2m+ B16F10 cells at 72 h), outperforming mRNA formulations. In vivo, a single intratumoral dose of AA15V LNP-sSE-SCTs suppressed tumor growth by 22-fold in vaccinated mice, synergizing with checkpoint inhibitors (anti-PD-1/CTLA-4) for complete regression in 28.6% of lymphoma models. Ex vivo, AA15V enabled SE-SCT expression in human glioblastoma (7.1% CD45– cells) and lung cancer samples (5.8–8.7%), underscoring clinical potential. Key data: pKa ~6.3; encapsulation: 85–89%; zeta: +4–6 mV; size: 102.3 ± 4.1 nm.

Product information

CAS No.	Not available
Chemical Name	Lipid AA15
Formula	C59H116O7N2
M.Wt	965.58
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: 965.58 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	10.356 mL	2.071 mL	1.036 mL
25 mg	25.891 mL	5.178 mL	2.589 mL
50 mg	51.782 mL	10.356 mL	5.178 mL
100 mg	103.565 mL	20.713 mL	10.356 mL
250 mg	258.912 mL	51.782 mL	25.891 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

LNP-RNA-mediated antigen presentation leverages SARS-CoV-2-specific immunity for cancer treatment
Y Xue, X Hou, Y Zhong, Y Zhang, S Du, DD Kang... - Nature Communications, 2025