DC68205 | CA-20

Instructions for Use

CA-20 is a bile acid-derived sterol designed to replace cholesterol in mRNA LNPs. It achieves high mRNA encapsulation efficiency up to 87.4% and forms uniform, spherical nanoparticles with ordered membrane structures confirmed by cryo-TEM and MD simulations. In vivo, CA-20 drastically cuts hepatic mRNA expression while shifting nearly all gene expression to the spleen, driven by reduced ApoE protein binding on LNP surfaces. Using HA mRNA vaccines, CA-20 LNPs trigger stronger antigen-specific IgG, neutralizing antibodies, memory B cells and IFN-γ-secreting T cells than cholesterol LNPs. Acute safety tests prove CA-20 causes minimal liver damage, with normal serum liver enzymes and intact organ histology, delivering balanced superior immunogenicity and low liver toxicity for spleen-targeted mRNA vaccine delivery.

Product information

CAS No.	Not available
Chemical Name	CA-20
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

Not available