

DC67539 | Lipid CS22021

Instructions for Use

CS22021 is an ionizable sterol lipid studied in three-component LNPs containing a helper phospholipid and M-DMG-PEG2K, without added free cholesterol. The supporting information reports formulation ratios, N/P and particle properties. The published abstract reports localized expression after intramuscular administration and enhanced CD8+ T-cell responses in a preclinical VZV mRNA vaccine study.

Product information

CAS No.	Not available
Chemical Name	Lipid CS22021
Formula	C58H101O5N3
M.Wt	920.46
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.

Component	Reported component ratio	Role
CS22021	49.25	Ionizable lipid
DOPE	49.25	Helper phospholipid
M-DMG-PEG2K	1.5	PEG lipid
Reported ratio sum	100	Original ratio retained
N/P ratio	8	
Cargo	Luciferase mRNA reporter; gE vaccine cargo is listed separately in Table S2.	
Administration route	IV reporter assay (SI Fig. S5); IM localization (abstract only).	
Dose	IV: 5 micrograms mRNA/mouse. IM dose not available in supplied SI/abstract.	
Animal model	IV: male BALB/c mice, 6-8 weeks, n=3.	

Formulation process Not specified in supplied SI or abstract.

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: 920.46 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	10.864 mL	2.173 mL	1.086 mL
25 mg	27.160 mL	5.432 mL	2.716 mL
50 mg	54.321 mL	10.864 mL	5.432 mL
100 mg	108.641 mL	21.728 mL	10.864 mL
250 mg	271.603 mL	54.321 mL	27.160 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

Cited literature for this formulation and performance dataset Wang Z, Yan Z, Yan S, et al. Ionizable Sterol Lipid-Based Three-Component Lipid Nanoparticles for Localized Delivery of mRNA Vaccine with Stronger Cellular Immune Responses. ACS Applied Materials & Interfaces. 2025;17(25):36377-36386. DOI: 10.1021/acsami.5c04597 Numerical data: supplied 16-page SI, Tables S1-S2 and Figs. S5-S6. IM localization and immune-response claims: indexed abstract only. Full article methods were not accessible. Publisher Supporting Information · PubMed abstract