

DC68219 | Lipid CY7

Instructions for Use

CY7 is an ionizable lipid engineered for localized pulmonary mRNA delivery. Its structure combines a cyclohexane-based core, a 4-dimethylaminopiperidine ionizable headgroup, two ester linkers, and four extended hydrophobic branches. In LNPs formulated with cholesterol, DSPC, and DMG-PEG, CY7 produced substantially higher local luciferase expression and lung-to-liver selectivity than SM-102 following intratracheal administration. CY7 LNPs also enhanced functional mRNA expression in pulmonary neutrophils, endothelial and epithelial cells, as well as dendritic and B cells in lung-draining lymph nodes. When used to deliver PcrV and OprF-I mRNAs, pulmonary CY7 LNP vaccination generated rapid antigen-independent innate protection followed by durable antigen-specific humoral, mucosal, and cellular immunity. In mouse models, it reduced bacterial burden and improved survival following challenge with laboratory and carbapenem-resistant *Pseudomonas aeruginosa*. CY7 remains a preclinical research lipid requiring further pharmacokinetic, repeat-dose, and translational safety evaluation.

Product information

CAS No.	Not available
Chemical Name	Lipid CY7
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

Mastrangelo A, Robles-Vera I, Mañanes D, et al. Imidazole propionate is a driver and therapeutic target in atherosclerosis. *Nature*. 2025;645:254–261.