

DC60509 | 4A3-SCC-PH

Instructions for Use

4A3-SCC-PH is a groundbreaking linker-degradable ionizable lipid (LDIL) that features a glutathione (GSH)-responsive cone-shaped molecular structure. This unique architecture enables superior endosomal escape and rapid mRNA release, making it highly effective for mRNA delivery. In vivo studies have highlighted its exceptional performance, showing a 176-fold increase in mRNA delivery efficiency to the liver compared to DLin-MC3-DMA, a widely used benchmark lipid. Both 4A3-SCC-PH and its structural analog, 4A3-SCC-10, also demonstrated significantly enhanced mRNA delivery efficacy compared to their non-disulfide-containing parent compounds and disulfide-containing controls with modified lipid tails.

Product information

CAS No.	Not available
Chemical Name	4A3-SCC-PH
Formula	C91H171N3O16S12
M.Wt	1,948.094
Purity	>95%
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: 1948.094 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	5.133 mL	1.027 mL	0.513 mL
25 mg	12.833 mL	2.567 mL	1.283 mL
50 mg	25.666 mL	5.133 mL	2.567 mL
100 mg	51.332 mL	10.266 mL	5.133 mL
250 mg	128.331 mL	25.666 mL	12.833 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

Chen Z. et al. "Modular Design of Biodegradable Ionizable Lipids for Improved mRNA Delivery and Precise Cancer Metastasis Delineation In Vivo." J. Am. Chem. Soc. 2023, 145(44) 24302-24314. doi: 10.1021/jacs.3c09143.