

DC67658 | Lipid 4A2-B8-PH

Instructions for Use

4A2-B8-PH is an optimally designed thioketal-incorporated biodegradable ionizable lipid (TBIL) for mRNA delivery to pancreatic ductal epithelial cells. It features a 4A2 headgroup with three tertiary amines, a biodegradable thioketal-based B8 linker, and a branched PH tail. The thioketal linker enables ROS-responsive degradation in the tumor microenvironment, enhancing endosomal escape and mRNA release. In vivo, 4A2-B8-PH LNPs achieve 98.3% pancreas-specific targeting after intraperitoneal administration, with a 218-fold improvement in delivery efficiency compared to previous benchmarks. It successfully transfects 30.5% of pancreatic ductal epithelial cells and induces complete tumor regression in orthotopic PDAC models via IL-12 mRNA therapy, demonstrating high efficacy and safety.

Product information

CAS No.	Not available
Chemical Name	Lipid 4A2-B8-PH
Formula	C111H211O16N3S12
M.Wt	2,228.63
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: 2228.63 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	4.487 mL	0.897 mL	0.449 mL
25 mg	11.218 mL	2.244 mL	1.122 mL
50 mg	22.435 mL	4.487 mL	2.244 mL
100 mg	44.871 mL	8.974 mL	4.487 mL
250 mg	112.177 mL	22.435 mL	11.218 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

Not available