

DC60639 | Acid-degradable Anionic Lipid (ADA)

Instructions for Use

ADA (Acid-Degradable Anionic Lipids) is revolutionizing mRNA delivery with its unique azido-acetal linker, enabling rapid hydrolysis in endosomes (pH ~6.0). This breakthrough technology ensures efficient endosomal escape, significantly enhancing mRNA delivery to target cells. ADA-LNPs excel in delivering mRNA to the spleen and liver, making them ideal for immune-related therapies. By degrading into biocompatible byproducts, ADA minimizes long-term tissue persistence and toxicity. ADA-LNPs outperform traditional LNPs, delivering mRNA more effectively to immune cells like macrophages and B cells.

Product information

CAS No.	Not available
Chemical Name	Acid-degradable Anionic Lipid (ADA)
Formula	C ₄₉ H ₆₂ Li ₃ N ₅ O ₁₁
M.Wt	917.88
Purity	ELSD-HPLC>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: 917.88 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	10.895 mL	2.179 mL	1.089 mL
25 mg	27.237 mL	5.447 mL	2.724 mL
50 mg	54.473 mL	10.895 mL	5.447 mL
100 mg	108.947 mL	21.789 mL	10.895 mL
250 mg	272.367 mL	54.473 mL	27.237 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

Acid-degradable lipid nanoparticles enhance the delivery of mRNA-Sheng Zhao, Aijun Wang, Niren Murthy, Nat Nanotechnol 2024 Aug 23. -

Lung and liver editing by lipid nanoparticle delivery of a stable CRISPR-Cas9 ribonucleoprotein Kai Chen, Hesong Han, Sheng Zhao, Bryant Xu, Boyan Yin, Atip Lawanprasert, Marena Trinidad, Benjamin W. Burgstone, Niren Murthy & Jennifer A. Doudna ---Nature Biotechnology (2024)