

DC60922 | Lipid AP60

Instructions for Use

AP60 is a novel, biomimetic ionizable lipid, identified as the lead compound from a library of 67 aminophosphonate-derived lipids. Inspired by the structure of natural phospholipids, it forms the core component of lipid nanoparticles within the CROSS delivery platform. AP60-based LNPs demonstrate superior efficiency in delivering mRNA and circular RNA to neuronal cells and astrocytes compared to the clinically used MC3 LNP. In a mouse model of spinal cord injury, AP60 LNPs achieved significantly higher protein expression at the lesion site (13.7-fold locally, 4.6-fold intravenously) while concurrently reducing off-target accumulation in the liver by nearly 5-fold. This indicates improved targeting to the central nervous system injury site and a potentially better safety profile. Its cellular uptake is primarily mediated by clathrin-mediated endocytosis and macropinocytosis, followed by efficient endosomal escape. By encapsulating therapeutic circular RNAs encoding Sox2, Ascl1, and GDNF, AP60 LNPs enable effective in vivo reprogramming and neuroprotection, leading to significant functional recovery of bladder and locomotor functions after spinal cord injury.

Product information

CAS No.	Not available
Chemical Name	Lipid AP60
Formula	C43H86O4NP
M.Wt	712.14
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: 712.14 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	14.042 mL	2.808 mL	1.404 mL
25 mg	35.105 mL	7.021 mL	3.511 mL
50 mg	70.211 mL	14.042 mL	7.021 mL
100 mg	140.422 mL	28.084 mL	14.042 mL
250 mg	351.055 mL	70.211 mL	35.105 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