

DC68021 | BIP-20

Instructions for Use

BiP-20 is a branched ionizable phospholipid identified as a lead compound for efficient hepatic mRNA delivery. BiP-20 is a novel, efficient, and safe liver-targeted LNP delivery vehicle. With an ideal pKa of 6.56, it achieves highly efficient liver targeting and endosomal escape primarily through the ApoE/LDL-R pathway. It demonstrates exceptional performance in gene editing at very low doses: for CRISPR-Cas9-mediated editing of TTR, a 10 µg dose achieved ~64% efficiency, which is 8-fold higher than the clinical benchmark lipid LP-01. In Prime Editing targeting the PCSK9 gene, its efficiency (4.30%) also significantly surpassed that of MC3, SM102, and LPO1. Furthermore, it mediates a 5.9-fold increase in hepatic protein expression compared to MC3. Safety assessments indicate it does not induce liver function abnormalities, showing strong therapeutic potential.

Product information

CAS No.	Not available
Chemical Name	BIP-20
Formula	C44H93N2O3P
M.Wt	729.2128
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: 729.2128 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	13.713 mL	2.743 mL	1.371 mL
25 mg	34.284 mL	6.857 mL	3.428 mL
50 mg	68.567 mL	13.713 mL	6.857 mL
100 mg	137.134 mL	27.427 mL	13.713 mL
250 mg	342.835 mL	68.567 mL	34.284 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

Jozić A, Le Roux C, Kim J, et al. In vivo endosomal escape assay identifies mechanisms for efficient hepatic LNP delivery. Nat Biotechnol. Published online March 11, 2026. doi:10.1038/s41587-026-03022-6