

DC67557 | Tidal Lipid 40

Instructions for Use

Tidal Lipid 40 is an ionizable cationic lipid engineered to deliver RNA with high precision to immune cells like macrophages. Based on Tidal Therapeutics' patent US 20250205169A1, its pH-responsive design shifts from a +8 mV charge at pH 5.5 (enabling endosomal escape) to near-neutral at pH 7.4 (reducing off-target binding), ensuring efficient intracellular release while maintaining blood stability. In lipid nanoparticles, Lipid 40 achieves 65% transfection efficiency in human macrophages—surpassing benchmarks like ALC-0315—and protects >95% of RNA payloads from degradation. Critically, it maintains particle integrity after freeze-thaw cycles with minimal size drift (<5 nm) and excels in in vivo targeting, driving potent gene expression in tumor-associated macrophages while avoiding liver/spleen accumulation. This combination of precision delivery, stability, and low toxicity makes it ideal for immunotherapies, such as reprogramming M2 macrophages to anti-tumor M1 states.

Product information

CAS No.	Not available
Chemical Name	Tidal Lipid 40
Formula	C ₆₃ H ₁₁₈ O ₁₁ N ₂
M.Wt	1,079.64
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: 1079.64 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	9.262 mL	1.852 mL	0.926 mL
25 mg	23.156 mL	4.631 mL	2.316 mL
50 mg	46.312 mL	9.262 mL	4.631 mL
100 mg	92.623 mL	18.525 mL	9.262 mL
250 mg	231.559 mL	46.312 mL	23.156 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