

DC67558 | AMG1541

Instructions for Use

AMG-1541 is a degradable cyclic amino alcohol ionizable lipid optimized for mRNA vaccine delivery using lipid nanoparticles (LNPs). Formulated typically with DOPE, cholesterol, and PEG-lipids, AMG 1541 LNPs have a diameter of ~85 nm, PDI of 0.107, and encapsulation efficiency of 67%, ensuring stability and efficient mRNA delivery. In vitro, it outperforms benchmarks like SM-102, showing enhanced transfection in cells such as C2C12 and PBMCs. In vivo, intramuscular administration in mice results in robust protein expression within 6 hours and induces potent immune responses, including high antibody titers and Th1-biased T-cell activation, with minimal inflammation. Mechanistically, its β -hydroxyl groups form hydrogen bonds with mRNA phosphate backbones, facilitating endosomal escape. AMG1541 degrades rapidly under enzymatic conditions, reducing long-term toxicity, and is effective for vaccines targeting pathogens like influenza and SARS-CoV-2, making it a promising candidate for clinical applications.

Product information

CAS No.	Not available
Chemical Name	AMG1541
Formula	C102H186O18N6
M.Wt	1,783.38
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: 1783.38 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	5.607 mL	1.121 mL	0.561 mL
25 mg	14.018 mL	2.804 mL	1.402 mL
50 mg	28.037 mL	5.607 mL	2.804 mL
100 mg	56.073 mL	11.215 mL	5.607 mL
250 mg	140.183 mL	28.037 mL	14.018 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

Rudra, A., Gupta, A., Reed, K. et al. Degradable cyclic amino alcohol ionizable lipids as vectors for potent influenza mRNA vaccines. Nat. Nanotechnol. (2025). <https://doi.org/10.1038/s41565-025-02044-6>