

DC67292 | IAJD34

Instructions for Use

IAJD-34 is a one-component ionizable amphiphilic Janus dendrimer specifically engineered for targeted mRNA delivery to the lung parenchyma, as described by Meshanni et al. in Nature Communications article "Targeted delivery of TGF- β mRNA to murine lung parenchyma using one-component ionizable amphiphilic Janus Dendrimers". This synthetic nanoparticle self-assembles with mRNA through simple mixing in acetate buffer, forming stable dendrimersomes approximately 93-97 nm in size with high encapsulation efficiency (>95%) and a positive zeta potential (~48 mV). Its defining feature, highlighted in the study, is exceptional lung tropism after intravenous injection, enabling significantly higher luciferase expression in murine lungs compared to other organs. As demonstrated by Meshanni et al., IAJD 34 effectively delivers therapeutic mRNA (e.g., TGF- β mRNA) to the lower lung, inducing transient protein production with minimal systemic toxicity at appropriate doses (e.g., 10 μ g), offering a promising strategy for treating parenchymal lung diseases.

Product information

CAS No.	Not available
Chemical Name	IAJD34
Formula	C79H129N3O17
M.Wt	1,392.91
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: 1392.91 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	7.179 mL	1.436 mL	0.718 mL
25 mg	17.948 mL	3.590 mL	1.795 mL
50 mg	35.896 mL	7.179 mL	3.590 mL
100 mg	71.792 mL	14.358 mL	7.179 mL
250 mg	179.480 mL	35.896 mL	17.948 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

Meshanni, J.A., Stevenson, E.R., Zhang, D. et al. Targeted delivery of TGF-β mRNA to murine lung parenchyma using one-component ionizable amphiphilic Janus Dendrimers. Nat Commun 16, 1806 (2025).