

DC65328 | AA-T3A-C12

Instructions for Use

AA-T3A-C12 is a leading anisamide-tethered lipidoid (AA-lipidoid) identified through a combinatorial library screening for targeted RNA delivery to activated fibroblasts, offering a promising approach to treat liver fibrosis. AA-T3A-C12 is a leading anisamide-tethered lipidoid (AA-lipidoid) identified through a combinatorial library screening for targeted RNA delivery to activated fibroblasts, offering a promising approach to treat liver fibrosis. It is synthesized via a one-pot, two-step modular method that combines anisamide—a ligand for sigma receptors overexpressed on activated hepatic stellate cells (HSCs)—with a T3A polyamine core and C12 epoxide tails, enabling efficient siRNA encapsulation in lipid nanoparticles (LNPs).

In vitro, AA-T3A-C12 LNPs exhibit enhanced cellular uptake and gene silencing in activated fibroblasts, dependent on sigma receptor binding, as confirmed by haloperidol blockade studies, and outperform non-targeted analogs and the FDA-approved MC3 LNPs in fibroblast selectivity. In a mouse model of CCl4-induced liver fibrosis, AA-T3A-C12/siHSP47 LNP achieves approximately 65% knockdown of heat shock protein 47 (HSP47), a key fibrotic target, leading to significant reduction in collagen deposition and fibrosis alleviation, with a good safety profile and no exacerbation of liver injury.

Product information

CAS No.	Not available
Chemical Name	AA-T3A-C12
Formula	C65H126N4O6
M.Wt	1,059.72
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: 1059.72 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	9.436 mL	1.887 mL	0.944 mL
25 mg	23.591 mL	4.718 mL	2.359 mL
50 mg	47.182 mL	9.436 mL	4.718 mL
100 mg	94.365 mL	18.873 mL	9.436 mL
250 mg	235.911 mL	47.182 mL	23.591 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

Ligand-tethered lipid nanoparticles for targeted RNA delivery to treat liver fibrosis-Nature Communications volume 14, Article number: 75 (2023)