

# DC60979 | Ionizable lipid-3 (SM-102 analogue)

## Instructions for Use

Ionizable lipid-3( SM-102 analogue) is a cationic lipid for nucleic acid delivery, with the ability to form lipid nanoparticle mRNA vaccines that exhibit in vitro stability and immunostimulatory activity. This SM-102 analogue retains the ionizable tertiary amine and asymmetric hydrophobic architecture while replacing the ester linkages with carbonate groups and repositioning the hydroxyl functionality. These modifications are designed to tune biodegradability, membrane interactions, and LNP delivery performance.

## Product information

|                    |                                                                                                                                                                               |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CAS No.            | Not available                                                                                                                                                                 |
| Chemical Name      | Ionizable lipid-3 (SM-102 analogue)                                                                                                                                           |
| Formula            | $C_{50}H_{99}NO_7$                                                                                                                                                            |
| M.Wt               | 826.34                                                                                                                                                                        |
| Purity             | 98%                                                                                                                                                                           |
| Storage            | Original product: up to 1 year under the storage conditions stated on the vial, kept tightly sealed. Stock solutions: aliquots at $-20^{\circ}C$ , 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: 826.34 g/mol. Volumes are final solution volumes.

| Mass   | 1 mM       | 5 mM      | 10 mM     |
|--------|------------|-----------|-----------|
| 10 mg  | 12.102 mL  | 2.420 mL  | 1.210 mL  |
| 25 mg  | 30.254 mL  | 6.051 mL  | 3.025 mL  |
| 50 mg  | 60.508 mL  | 12.102 mL | 6.051 mL  |
| 100 mg | 121.016 mL | 24.203 mL | 12.102 mL |
| 250 mg | 302.539 mL | 60.508 mL | 30.254 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