# LNP SM-102
# (Lipid Nanoparticles with SM-102 ionizable lipid available with GFP, Luc or OVA mRNA)

## Description

Ready-to-use stabilized **LNP SM-102**
**Concentration:** 0.1 mg/mL mRNA in LNPs
**Buffer:** PBS, 10 % sucrose
**mRNA**: 5 moU GFP mRNA; 5 moU Luc mRNA; 5 moU OVA mRNA

Lipid Nanoparticles (LNPs) represent the most effective and safe delivery systems for the translational success of nucleic acid drugs. **LNP/mRNA** are designed to not only protect RNA from degradation, but also facilitate intracellular uptake and thus potentiate its efficacy. LNPs are lipidic spherical vesicles formed by a combination of four main compounds: ionizable cationic lipid, helper phospholipid, cholesterol & pegylated lipid, each having distinct functions (**Fig.1**). **LNP/mRNA** systems self-assemble *via* electrostatic interactions between negatively charged RNA and ionizable cationic lipids. Our delivery systems are produced through microfluidic technology resulting in monodisperse **LNP/mRNA** with narrow size distribution and high encapsulation efficiency (>80%). **LNP SM-102** are produced with the same lipid composition as the Spikevax Moderna vaccines against Covid-19. Currently, LNPs hold great potential in diverse pharmaceutical applications including oncology, immunotherapy, regenerative medicine or chronic diseases treatment.

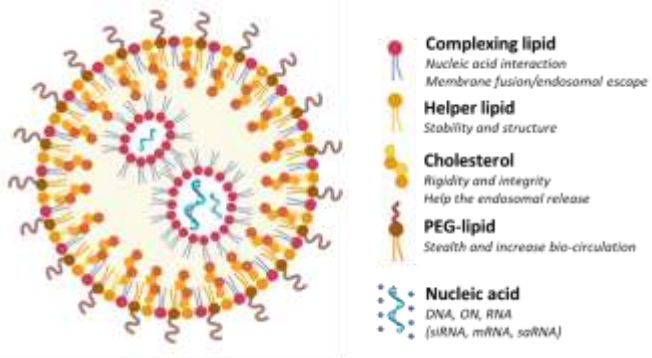



**Fig.1. Schematic representation of LNPs-mRNA**

## Applications

**OZB mRNAs:** mRNAs have been designed to drive high expression level of protein. mRNAs can be used as control of transfection efficiency. mRNAs resemble fully matured mRNAs with 5' Cap1 structure and 3' polyA tail, therefore ready to be translated by the ribosome. This approach presents also the advantage of being non-integrative which is particularly appealing for stem cells, regenerative medicine or vaccine fields. Contrary to pDNA, mRNA cannot lead to genetic insertion causing mutations. Moreover, the protein expression from mRNA is promoter-independent and faster than with DNA.

**LNP SM-102:** *in vivo* and *in vitro* delivery of **LNP/mRNA** and mRNA expression kinetics can easily be assessed by measurement of the bioluminescent or fluorescent signal. Additional information and results can be found in our LNP White Paper on our website as well as comparison with our proprietary LNP formulations: https://ozbiosciences.com/blog/white-paper-lnp-formulations-for-mrna-delivery-n124

## Quality Controls

| Items | Specification | Standard QC | Superior Grade QC* |
|---|---|---|---|
| *Identity* | Size | ✓ | ✓ |
| | Charge | ✓ | ✓ |
| *Content* | Encapsulation efficiency | ✓ | ✓ |
| | RNA concentration | ✓ | ✓ |
| *Safety* | Sterility | ✓ | ✓ |
| | Endotoxin | | ✓ |
| | Mycoplasma detection | | ✓ |
| *Characterization* | Lipid content | | ✓ |

* Contact us to get a quote.

Certificate of analysis on demand.

## Use, handling and storage

*For Research Use Only. Not for use in humans. Not for use in diagnostic or therapeutic purposes.*

**Long term storage (6 months):** -80°C
**Short term storage (2 months):** +4°C
We recommend minimizing freeze-thaw cycles to preserve LNPs integrity.

## Kit contents

**LNP1020500mRNA11:** 0.5 mL (2*250 µL) of **LNP/mRNA**, (100 µg/mL of 5 moU GFP mRNA)
**LNP1021000mRNA11:** 1 mL (4*250 µL) of **LNP/mRNA**, (100 µg/mL of 5 moU GFP mRNA)
**LNP1025000mRNA11:** 5 mL (20*250 µL) of **LNP/mRNA**, (100 µg/mL of 5 moU GFP mRNA)
**LNP1020500mRNA12:** 0.5 mL (2*250 µL) of **LNP/mRNA**, (100 µg/mL of 5 moU Luc mRNA)
**LNP1021000mRNA12:** 1 mL (4*250 µL) of **LNP/mRNA**, (100 µg/mL of 5 moU Luc mRNA)
**LNP1025000mRNA12:** 5 mL (20*250 µL) of **LNP/mRNA**, (100 µg/mL of 5 moU Luc mRNA)
**LNP1020500mRNA41:** 0.5 mL (2*250 µL) of **LNP/mRNA**, (100 µg/mL of 5 moU OVA mRNA)
**LNP1021000mRNA41:** 1 mL (4*250 µL) of **LNP/mRNA**, (100 µg/mL of 5 moU OVA mRNA)
**LNP1025000mRNA41:** 5 mL (20*250 µL) of **LNP/mRNA**, (100 µg/mL of 5 moU OVA mRNA)

Rev 03/26 CS

LNPs have a composition as described in table below:

| Lipid mix components | Molecular weight | Molar ratio |
|---|---|---|
| SM-102 | 710.2 | 50.0 |
| DSPC | 790.2 | 10.0 |
| Cholesterol | 386.7 | 38.5 |
| DMG-PEG 2000 | 2509.2 | 1.5 |

## Related Products

| Ref | Description |
|---|---|
| #**LNPV** | NanOZ-LNP In Vitro/mRNA (GFP) |
| #**LNPMO** | NanOZ-LNP Multi-Organ/mRNA (Luc) |
| #**LNP10500mRNA41** | NanOZ-LNP Immunisation/mRNA (OVA) |

**Custom LNPs & mRNAs are also available!**

## Purchaser Notification | Conditions of Sale

This product is sold in accordance with our general conditions of sale that you can find on our website: https://ozbiosciences.com/content/3-terms-and-conditions.