Spike SARS CoV-2 OMICRON mutant mRNA
(mRNA encoding spike protein of SARS-CoV-2 OMICRON mutant Variant B1.1.529/BA.1)

Description

Ready-to-use stabilized Spike SARS CoV-2 OMICRON mutant (A67V; H69-; V70-; T95I; G142-; V143-; Y144-; Y145D; N211-; L212I; ins EPE 214; G339D; S371L; S373P; S375F; K417N; N440K; G446S; S477N; T478K; E484A; Q493R; G496S; Q498R; N501Y; Y505H; T547K;D614G; H655Y; N679K; P681H; N764K; D796Y; N856K; Q954H; N969K; L981F) mRNA (L452R; T478K; D614G; P681R; D950N) mRNA.

Cap Modification: Cap 1 | **Poly (A) Tail:** Yes

Concentration: 1.0 mg/mL

Buffer: 1 mM Sodium Citrate, pH 6.4

Full length mRNA: 4027 nt

Molecular weights: #**MRNA38:** 1297642 g/mol; #**MRNA39:** 1317802 g/mol; #**MRNA44**: 1307722 g/mol

Spike SARS CoV-2 OMICRON mRNAs have been designed to produce high expression level of OMICRON mutant spike protein of SARS-CoV-2 virus. OZB mRNAs are produced by *in vitro* transcription. mRNAs are stabilized at the 5' end by modified nucleotides capping (Cap1) and contain a poly(A) tail at the 3' end. Sequences have been optimized to yield improved stability and performance. Spike SARS CoV-2 OMICRON mRNA #**MRNA38** does not bear any additional nucleotide modifications while #**MRNA39** is modified with 5-methoxyuridine (5moU), #**MRNA44** is modified with N1-methyl-pseudouridine to reduce innate immune response.

Applications

For the COVID-19 vaccines, scientists developed synthetic mRNA in a lab that instructs cells to produce the distinctive spike protein from the SARS-CoV-2 virus. The immune system then targets and destroys these foreign spike proteins. If the body encounters the real virus at a later time, the body's immune system will already be prepared to fend it off again. This mRNA encodes for the omicron mutant Spike protein of the SARS-CoV-2 virus (variant B1.1.529/BA.1) and bears several mutations. Spike protein is used as antigen for immunization and biochemical studies.

General considerations on OZB's mRNA

Spike mRNAs resemble fully matured mRNAs with 5'cap1 structure and 3' polyA tail, therefore ready to be translated by the ribosome. mRNA transfection provides several advantages over plasmid DNA (pDNA) delivery. It does not require nuclear uptake for being expressed since translation of mRNA occurs directly into cytoplasm. Indeed, nuclear delivery (transport through nuclear membrane) is one the principal barriers for transfecting slow or non-dividing cells and consequently, mRNA transfection is particularly attractive for such purpose. 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 the mRNA is promoter-independent and faster than with DNA. For transfection we recommend RmesFect™ (#RM21000) and RmesFect™ Stem (#RS31000).

Quality Controls

Items	Specification	Standard QC	Superior Grade QC*
Integrity	Agarose gel mobility and fragment analyzer	✓	✓
Concentration	1mg/ml +/- 5%	✓	✓
A260/280	>1.8 for Unmodified mRNAs >1.7 for chemically modified mRNAs	✓	✓
Sterility	Absence of bacterial growth at 37°C	✓	✓
*Functionality***	Test for protein expression	✓	✓
Endotoxin	<0.5 EU/mL		✓
dsRNA	<0.5%		✓

* Our catalogue mRNAs undergo the standard QC. Superior Grade QC can be performed as an additional prestation.
** For reporter mRNAs and Spike SARS-Cov2 related mRNAs only for catalog mRNAs. Can be included in superior Grade QC

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 (months): -80°C.

Short term storage (few days): -20°

We recommend to aliquot the mRNA solution for a better storage. Follow good laboratory practices for mRNA handling (work on ice, avoid freeze/thaw cycles, do not vortex, use RNAse free water and barrier tips, …)

Rev 03/25 CS

mRNA Stability

RNA can suffer degradation when not handled, stored, or used properly. In order to assess the stability of OZ Biosciences mRNAs, we have tested a randomly chosen RNA from our catalog and submitted it to several freeze/thaw cycles as well as a 15-day storage at room temperature (RT). mRNA did not show any sign of degradation in any condition as observed on agarose gel (*cf* Stability note available on our website).

Kit contents

Spike SARS CoV-2 OMICRON mRNAs-20: 20 µg of mRNA.
Spike SARS CoV-2 OMICRON mRNAs-100: 100 µg mRNA.
Spike SARS CoV-2 OMICRON mRNAs-1000: 1 mg of mRNA.

Related Products

Ref	Description
#**RM20500/21000**	RmesFect™ transfection reagent (mRNA)
#**RS30500/31000**	RmesFect™ Stem transfection reagent (mRNA)
#**MRNA11/15/22**	mRNA GFP unmodified or 5moU or N1-mpU
#**MRNA12/16/24**	mRNA LUC unmodified or 5moU or N1-mpU
#**MRNA40/41/42**	mRNA OVA unmodified or 5moU or N1-mpU
#**MRNA34**	mRNA spike SARS Cov2 (E484K; N501Y)
#**MRNA35**	mRNA spike SARS Cov2 (E484K; N501Y)(5moU)
#**MRNA43**	mRNA Spike SARS-CoV-2 (E484K; N501Y) (N1-mψ)
#**MRNA36**	mRNA spike SARS Cov2 DELTA mutant
#**MRNA37**	mRNA spike SARS Cov2 DELTA mutant (5moU)

Custom mRNAs are also available now!

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.