ExploCap™ Spike SARS CoV-2 (E484K; N501Y) mRNA

(mRNA encoding spike protein of SARS-CoV-2 virus capped with ExploCap analog)

Description

Ready-to-use stabilized Spike SARS CoV-2 (E484K; N501Y) mRNA

Cap Modification: ExploCap™ | **Poly (A) Tail:** Yes

Concentration: 1.0 mg/mL

Buffer: 1 mM Sodium Citrate, pH 6.4

Full length mRNA: 4036 nt

Molecular weights: #**MRNA116:** 1031812 g/mol; #**MRNA117:** 1321882 g/mol; #**MRNA118:** 1311847 g/mol.

Spike SARS CoV-2 (E484K; N501Y) mRNAs have been designed to produce high expression level of spike protein. OZB ExploCap mRNAs are produced by *in vitro* transcription and are co-transcriptionnaly capped using trinucleotides ExploCap analog. mRNAs also contain stabilizing untranslated region (UTRs) and a poly(A) tail at the 3' end. Sequences have been optimized to yield improved stability and performance. ExploCap Spike SARS CoV-2 mRNA #**MRNA116** does not bear additional chemical modifications while #**MRNA117** is modified with 5-methoxyuridine (5moU) and #**MRNA118** 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 Spike protein of the SARS-CoV-2 virus and bears two mutations (E484K and N501Y). Spike protein is used as antigen for immunization and biochemical studies.

General considerations on OZB's mRNA

ExploCap Spike SARS CoV-2 mRNAs resemble fully matured mRNAs with 5'cap structure and 3' polyA tail, therefore ready to be translated by the ribosome. ExploCap is a proprietary ExploRNA cap with properties similar to Cap 1.

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 purposes. 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, …)

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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

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

Related Products

Ref	Description
#**RM20500/21000**	RmesFect™ transfection reagent (mRNA)
#**RS30500/31000**	RmesFect™ Stem transfection reagent (mRNA)

Custom mRNAs are also available now!

Purchaser Notification | Conditions of Sale

ExploCap™ technology is licensed to OZ Biosciences by ExploRNA Therapeutics and is protected under patent WO2021162566. ExploCap is the intellectual property of ExploRNA Therapeutics. All mRNA products incorporating ExploCap are supplied for Research Use Only (RUO) and are not intended for diagnostic, therapeutic, or clinical use.

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.