TfR-OVA mRNA
(mRNA encoding a truncated form of OVA in fusion with transferrin receptor for membrane localization)

Description

Ready-to-use stabilized TfR-OVA 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: 1319 nt
Molecular weights: #**MRNA104:** 428050 g/mol; #**MRNA105:** 433480 g/mol; #**MRNA106**: 430765 g/mol

TfR-OVA mRNAs have been designed to produce high expression level of Transferrin Receptor-Ovalbumin fusion protein located at the cellular membrane. 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. OVA mRNA #**MRNA104** does not bear any additional nucleotide modifications while #**MRNA105** is modified with 5-methoxyuridine (5moU), #**MRNA106** is modified with N1-methyl-pseudouridine (n1-mψ) to reduce innate immune response.

Applications

This mRNA encodes for a chimeric protein that is a commonly used antigen for immunization and biochemical studies: TfR-OVA mRNA contains the first 118 amino acids of human transferrin receptor (TfR) fused to amino acids 139–386 of ovalbumin, resulting in a membrane-bound form of OVA[1].

[1]Diebold, S., Cotten, M., Koch, N. *et al.* MHC class II presentation of endogenously expressed antigens by transfected dendritic cells. *Gene Ther* **8**, 487–493 (2001). https://doi.org/10.1038/sj.gt.3301433

General considerations on OZB's mRNA

TfR-OVA 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 HPLC	✓	✓
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	✓	✓
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.

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

TfR-OVA mRNAs-20: 20 µg of mRNA.
TfR-OVA mRNAs-100: 100 µg mRNA.
TfR-OVA 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
#**MRNA34/35/43**	mRNA spike SARS Cov2 unmodified or 5moU or N1-mpU
#**MRNA36/37/45**	mRNA Spike Delta SARS-CoV-2 unmodified or 5moU or N1-mpU
#**MRNA38/39/44**	mRNA Spike Omicron SARS-CoV-2 unmodified or 5moU or N1-mpU
#**MRNA46/47/48**	mRNA HA-H1N1 unmodified or 5moU or N1-mpU
#**MRNA49/50/51**	mRNA HA-H3N2 unmodified or 5moU or N1-mpU

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.