

Description

Ready-to-use stabilized F-Luc mRNA

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

Concentration: 1.0 mg/mL

Buffer: 1 mM Sodium Citrate, pH 6.4

Full length mRNA: 1150 nt

Molecular weights: #MRNA113: 608308 g/mol; #MRNA114: 616288 g/mol; #MRNA115: 612298 g/mol.

F-Luc mRNAs have been designed to produce high expression level of Firefly Luciferase protein. OZB ExploCap mRNAs are produced by *in vitro* transcription and are co-transcriptionally 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 F-Luc mRNA #MRNA113 does not bear additional chemical modifications while #MRNA114 is modified with 5-methoxyuridine (5mU) and #MRNA115 is modified with N1-methyl-pseudouridine to reduce innate immune response.

Applications

ExploCap F-Luc mRNAs can be used as control of transfection efficiency as a reporter gene.

Luciferase detection

For transfections performed with ExploCap F-Luc MRNAs, the detection of Firefly Luciferase can be monitored using D-Luciferin Na⁺ and K⁺ salts (#LN10000 and #LK10000). The produced light is detected with the help of a luminometer for *in vitro* test or by *in vivo* imaging system for preclinical research.

NOTE: refer to D-Luciferin and Luciferase assay kit protocols for more details.

General considerations on OZB's mRNA

ExploCap F-Luc 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 of 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*
<i>Integrity</i>	Agarose gel mobility and fragment analyzer	✓	✓
<i>Concentration</i>	1mg/ml +/- 5%	✓	✓
<i>A260/280</i>	>1.8 for Unmodified mRNAs >1.7 for chemically modified mRNAs	✓	✓
<i>Sterility</i>	Absence of bacterial growth at 37°C	✓	✓
<i>Functionality**</i>	Test for protein expression	✓	✓
<i>Endotoxin</i>	<0.5 EU/mL		✓
<i>dsRNA</i>	<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, ...)

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 F-Luc mRNAs-20: 20 µg of mRNA.

ExploCap F-Luc mRNAs-100: 100 µg mRNA.

ExploCap F-Luc 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>.