F-Luc mRNA
(mRNA encoding Firefly Luciferase Protein)

Description

Ready-to-use stabilized F-Luc 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: 1872 nt
Molecular weights: #**MRNA16** : 603550 g/mol; #**MRNA16C**: 630616 g/mol; #**MRNA16B**: 660802 g/mol; #**MRNA16A**: 694200 g/mol
#**MRNA12** :611290 g/mol; #**MRNA12C**: 636796 g/mol; #**MRNA12B**: 644151 g/mol; #**MRNA12A**: 669033 g/mol
#**MRNA24**: 607420 g/mol; #**MRNA24C**: 637413 g/mol; #**MRNA24B**: 640741 g/mol; #**MRNA24A**: 643953 g/mol.

F-Luc mRNAs have been designed to produce high expression level of Firefly Luciferase protein. 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. F-Luc mRNA #**MRNA16** does not bear any additional nucleotide modifications while #**MRNA12** is modified with 5-methoxyuridine (5moU), #**MRNA24** is modified with N1-methyl-pseudouridine (N1-mψ) to reduce innate immune response. #**MRNA16C or 12C or 24C** are labelled with Cy5 by replacing UTP by UTP-Cy5. #**MRNA16B or12B or 24B** are labelled with Cy3 by replacing UTP by UTP-Cy3 and #**MRNA16A or12A or 24A** are labelled with AZDye488 by replacing UTP by UTP-AZDye488.

Applications

F-Luc mRNAs can be used as control of transfection efficiency.

Luciferase detection

For transfections performed with 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.

#**MRNA12C**, **B** or **A** and #**MRNA16C**, **B** or **A**, #**MRNA24C**, **B** or **A** F-Luc MRNAs modified with cyanine fluorescent dye with excitation peak at 649 and emission peak at 666 nm (Cy5) or with excitation peak at 554 and emission peak at 566 nm (Cy3) or with excitation peak at 494 and emission peak at 520 nm (AF488).

General considerations on OZB's mRNA

F-Luc 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, …)

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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

F-Luc mRNAs-20: 20 µg of mRNA.
F-Luc mRNAs-100: 100 µg mRNA.
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)
#**MRNA11/15/22**	mRNA GFP unmodified or 5moU or N1-mpU
#**MRNA40/41/42**	mRNA OVA 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.