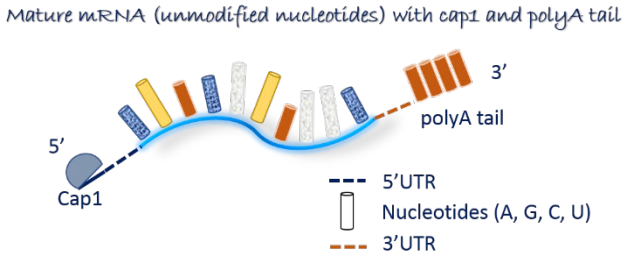
c-myc mRNA
(mRNA encoding human MYC proto-oncogene)

Description

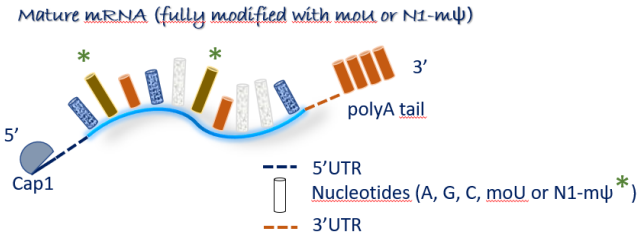
Ready-to-use stabilized c-Myc mRNA
Concentration: 1.0 mg/mL in 1 mM Sodium Citrate, pH 6.4
mRNA length: 1584 nt .
Molecular weights:
MRNA58: 512800 g/mol g/mol; **MRNA59:** 518800 g/mol;
MRNA60: 515800 g/mol.

c-Myc mRNAs have been designed to produce high expression level of c-Myc 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. C-Myc mRNA #**MRNA58** does not bear any additional nucleotide modifications while #**MRNA59** is modified with 5-methoxyuridine (5moU), #**MRNA60** is modified with N1-methyl-pseudouridine to reduce innate immune response.

(ref# **MRNA58**):



(ref# **MRNA59 or 60**):



Applications

c-Myc belongs to the basic Helix-Loop-Helix (bHLH) family of proteins [1]. The basic Helix-Loop-Helix (bHLH) proteins are transcription factors that play important roles during the development of various metazoans. They are also involved in human diseases, particularly in cancerogenesis. Indeed, c-Myc is a proto-oncogene. It encodes a nuclear phosphoprotein that plays a role in cell cycle progression, apoptosis and cellular transformation. C-Myc forms a heterodimer with the related transcription factor MAX; this complex binds to the E box DNA consensus sequence and regulates the transcription of specific target genes. Amplification of this gene is frequently observed in numerous human cancers [2]. Translocations involving this gene are associated with Burkitt lymphoma and multiple myeloma in human patients. It is been reported that translation initiates both from an upstream, in-frame non-AUG (CUG) and a downstream AUG start site, resulting in the production of two isoforms with distinct N-termini.
c-Myc has also been described to enhance the reprogramming of somatic cells to the pluripotent state together with other genes OCT3/4, SOX2, KLF4. Their ectopic expression induces pluripotent stem cells (iPSC) [3].
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c-Myc 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).

References:

[1] DOI: 10.1101/gr.177001
[2] DOI: 10.1038/s41571-021-00549-2
[3] DOI: 10.1152/physrev.00039.2017

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Kit contents

GFP mRNAs-20: 20 µg of mRNA.
GFP mRNAs-100: 100 µg mRNA.
GFP mRNAs-1000: 1 mg of mRNA.

Storage

mRNAs must be stored at -80°C.
We recommend to aliquot the mRNA solution for a better storage.

Related Products

Ref	Description
RM21000	RmesFect™ transfection reagent 1mL
RS31000	RmesFect™ Stem transfection reagent 1mL

Discover the complete list of mRNA at: www.ozbiosciences.com
Custom mRNAs are also available now!

Contact Us

Feel free to contact us for all complementary information and remember to visit our website to stay informed on the latest breakthrough technologies and updated on our complete product list. (www.ozbiosciences.com). For bulk, please contact us: order@ozbiosciences.com

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