

# EPO mRNA

## (mRNA encoding Human erythropoietin protein)

### Description

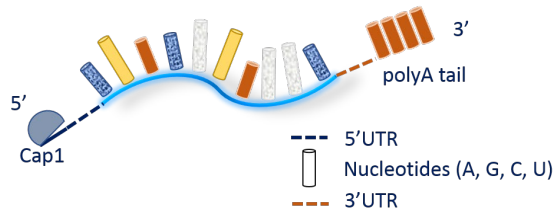
Ready-to-use stabilized EPO mRNA.

Concentration: 1.0mg/mL in 1mM Sodium Citrate, pH6.4.  
mRNA length: 796 nt. MW **MRNA4**= 259501 g/mol; **MRNA18**= 258016 g/mol; **MRNA19**= 260986 g/mol.

EPO mRNAs have been designed to produce high expression level of Erythropoietin 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. EPO mRNA **MRNA18** does not bear any additional nucleotide modifications while **MRNA19** is modified with 5-methoxyuridine (5moU), **MRNA4** is modified with N1-methyl-pseudouridine (N1- $\psi$ ) to reduce innate immune response.

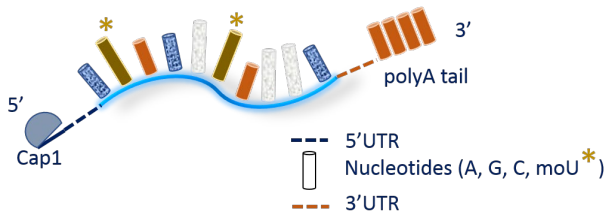
(ref# **MRNA18**):

Mature mRNA (unmodified nucleotides) with cap1 and polyA tail



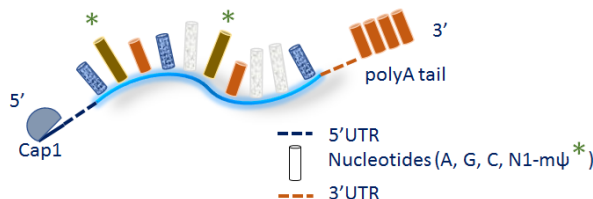
(ref# **MRNA19**):

Mature mRNA (fully modified moU) with cap1 and polyA tail



(ref# **MRNA4**):

Mature mRNA (fully modified N1- $\psi$ ) with cap1 and polyA tail



### Applications

These mRNAs encode for the human Erythropoietin protein, an hormone that controls erythropoiesis. EPO acts as a hematopoietic growth factor and stimulates the synthesis of red blood cells in the bone marrow.

EPO mRNA is commonly used for gene replacement and serves as model for expression of any secreted protein. Its expression can easily be evaluated by enzyme-linked immunosorbent assay (ELISA) while EPO's effect on red blood cell production is detected by measuring reticulocyte levels and the hematocrit from whole blood using a hematocrit assay. Measurement of EPO are rather straightforward and well established.

EPO 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).

### Kit contents

**EPO mRNAs -20:** 20  $\mu$ g of mRNA unmodified or modified.

**EPO mRNAs -100:** 100  $\mu$ g of mRNA unmodified or modified.

**EPO mRNAs -1000:** 1 mg of mRNA unmodified or modified.

### Storage

EPO mRNAs must be stored at -80°C;

We recommend to aliquot the mRNA solution for a better storage.

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## 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](http://www.ozbiosciences.com)  
**Custom mRNAs are also available now!**

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