

Description

Ready-to-use stabilized P95HER2 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: 2159 nt

Molecular weights: #**MRNA127:** 697730 g/mol; #**MRNA128:**

706850 g/mol; #**MRNA129:** 702290 g/mol

P95HER2 mRNAs have been designed to produce high expression level of P95HER2 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. P95HER2 mRNA #**MRNA127** does not bear any additional nucleotide modifications while #**MRNA128** is modified with 5-methoxyuridine (5mOU), #**MRNA129** is modified with N1-methyl-pseudouridine to reduce innate immune response.

Applications

HER2 is a member of the epidermal growth factor receptor (EGFR) family with tyrosine kinase catalytic activity and is implicated in a variety of cancers with epithelial origin¹. P95HER2 mRNA encodes a truncated membrane-anchored carboxy-terminal fragments (CTF) of 95–100 kD, known as p95HER2. This isoform has a short extracellular domain consisting of cysteine residues that are absent in the other isoforms and, due to the lack of a large part of the extracellular domain, forms homodimers more readily compared to HER2 full-length. P95HER2, also called HER2 611-CTF, is a biomarker for aggressive disease and confers resistance to therapy since it does not have the binding sites for the therapeutic HER2 antibodies (trastuzumab, pertuzumab, and margetuximab) and antibody–drug conjugates. Contrary to full-length HER2, 611-p95HER2 has negligible normal tissue expression².

1. Dorraji E, et al. Development of a High-Affinity Antibody against the Tumor-Specific and Hyperactive 611-p95HER2 Isoform. *Cancers* (2022). doi: 10.3390/cancers14194859.

2. Pedersen K, et al. A naturally occurring HER2 carboxy-terminal fragment promotes mammary tumor growth and metastasis. *Mol Cell Biol.* (2009). doi: 10.1128/MCB.01803-08.

General considerations on OZB's mRNA

P95HER2 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*
<i>Integrity</i>	Agarose gel mobility and HPLC	✓	✓
<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>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.

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 aliquoting 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

P95HER2 mRNAs-20: 20 µg of mRNA.

P95HER2 mRNAs-100: 100 µg mRNA.

P95HER2 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
#MRNA121/122/123	mRNA TP53 unmodified or 5moU or N1-mpU
#MRNA124/125/126	mRNA PD-L1 unmodified or 5moU or N1-mpU

Custom mRNAs are also available now!

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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>.