



Formulated for Encapsulation

Commonly used mRNA in ready-to-use prepackaged aliquots for research applications. Formulations specific for extruder and nanoparticle manufacturing systems.

Contact Our
Experts at

sales@helix-biotech.com

for Custom mRNA
Synthesis

Reporter RNA

mCherry mRNA

A red fluorescent protein RNA that is frequently used as a reporter in microscopy and imaging studies.

High Potency

Fluc mRNA

Firefly luciferase RNA that is commonly used in gene expression assays.

Cost Effective

eGFP mRNA

Enhanced green fluorescent protein RNA that is widely used as a reporter in gene expression studies.

High Purity

Custom mRNA Synthesis

- *In vitro* transcription mRNA Synthesis
- Template Design
- Codon Optimization
- Modified NTPs
- Analytical Packages

Custom mRNA made according to your needs, saving you **TIME** and **MONEY**

Lead times as low as 2-3 weeks!

Genetic Engineering

EPO mRNA

Erythropoietin RNA that is used in studies of transfection and protein production, potentially as a model or reporter protein. Our EPO RNA is of high purity and is available in various lengths to suit your experimental needs.

Cas9 mRNA

CRISPR associated protein 9 RNA that is used in CRISPR/Cas9 applications for gene editing and engineering. Our Cas9 RNA is highly pure and stable.

Cre mRNA

A Cre recombinase RNA that is widely used in genetic recombination studies. Our Cre RNA is high purity for repeatable results.

Genetic Engineering

mRNA	Modification	SKU(100µg)	SKU(1mg)	SKU(5mg)
EPO	N1MePU	HLXR-0100-100	HLXR-0100-1000	HLXR-0100-5000
Cre	N1MePU	HLXR-0200-100	HLXR-0200-1000	HLXR-0200-5000
Cas9	N1MePU	HLXR-0300-100	HLXR-0300-1000	HLXR-0300-5000

Research Use Only. These products are not intended for human or veterinary diagnostic or therapeutic uses.



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- Lipids & Preformulated Liposomes
- Formulation & CDMO Services

**BULK & CUSTOM
FORMULATIONS
AVAILABLE**



Increasing mRNA Potency and Purity

Custom mRNA Synthesis

Their Dilemma

A Client approached us with a unique **mRNA construct**, initially developed with another vendor. Despite following the vendor's advice, the Client found that the resulting mRNA did not show any potency, causing experimental delays and inaccurate results. Seeking higher quality and reliability, they turned to our expertise in custom mRNA synthesis and rigorous optimization processes. We worked to refine and enhance the Client's mRNA construct, ultimately providing a potent, high-quality product in a cost- and time-efficient manner.

Our Solution

Knowledge Transfer: We met with our Client to review all critical elements of their custom mRNA synthesis process. Key factors discussed included sequence composition, nucleotide modifications, template integrity, transcription conditions, purification methods, and potency assays. To optimize outcomes, we aimed to keep as many of these parameters as consistent as possible during the technology transfer to ensure smooth integration of our enhanced synthesis techniques.

Sequence Screening: We began by examining the original mRNA sequence, carefully considering key sequence elements, for example: restriction enzyme sites, secondary structures, codon optimization, GC content, 5' and 3' untranslated regions, and more. We ensured that there were no potential sequence elements that could inhibit translation and eventual potency, for example making silent mutations to reduce secondary structures, such as hairpins or loops. We also sought to incorporate our optimized 5' and 3' UTRs, which are designed to enhance mRNA stability and translation efficiency, ensuring consistent and high-yield protein expression for the client's application.

Verification: Once the optimal conditions were determined, we performed a full-scale run to produce their desired sample volumes. After verifying the samples passed our QC, which includes Fragment Analysis, the samples were shipped to the Client's lab for independent *in vitro* testing.

The Result

We were able to finish our Client's project in ≤ 6 weeks upon receiving their sequence. Following the delivery, the Client reported back with promising results; the mRNA we produced achieved the therapeutic outcomes initially envisioned, validating the quality and potency of our synthesis process.

The Client was thoroughly impressed with our responsiveness and precision, noting that our mRNA product not only met but exceeded their expectations in terms of efficacy and consistency. Since then, we have proudly become their exclusive mRNA provider, forming a long-term partnership focused on advancing their research program. This successful collaboration highlights our commitment to delivering reliable, high-quality mRNA solutions tailored to meet each Client's unique research and clinical needs.