WHAT IS CLAIMED IS:

1. An RNA comprising a nucleic acid sequence that encodes a protein of interest, said nucleic acid sequence having been codon optimized to comprise a plurality of endoplasmic reticulum (ER) targeting sequences as set forth in SEQ ID NO: 2, wherein N of SEQ ID NO: 2 is any nucleotide and Y of SEQ ID NO: 2 is a pyrimidine.

2. The RNA of claim 1, wherein said protein of interest is a membrane protein.

3. The RNA of claim 1, wherein said protein of interest is a secreted protein.

4. The RNA of any one of claims 1-3, wherein said ER targeting sequence comprises at least 15 consecutive repeats of the sequence NNY, wherein N is any base and Y is a pyrimidine.

5. The RNA of claim 1, wherein said ER targeting sequence does not comprise more than 10 consecutive thymines.

6. The RNA of any one of claims 1-5, wherein said protein of interest comprises a signal peptide sequence.

7. The RNA of claim 6, wherein said signal peptide sequence is heterologous to said protein of interest.

8. The RNA of any one of claims 1-7, wherein said protein of interest is a protein of a vaccine.

9. The RNA of any one of claims 1-7, wherein the nucleic acid encodes a single protein of interest.

10. The RNA of any one of claims 1-9, wherein said ER targeting sequence comprises at least 20 consecutive repeats of the sequence NNY, wherein N is any base and Y is a pyrimidine.

11. The RNA of any one of claims 1-10, wherein said protein is a human protein.