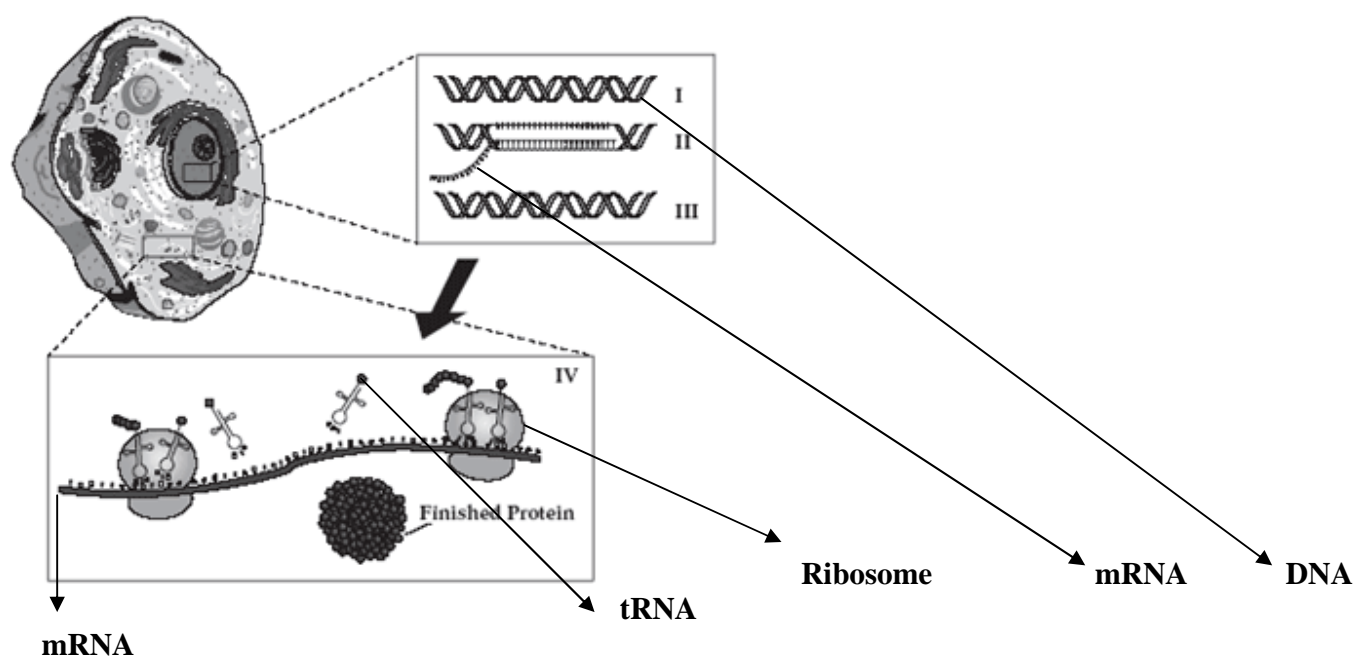


## PROTEIN SYNTHESIS WORKSHEET

### **PART A. Read the following and take notes on your paper:**

Protein synthesis is the process used by the body to make proteins. The first step of protein synthesis is called Transcription. It occurs in the nucleus. During transcription, mRNA transcribes (copies) DNA. DNA is “unzipped” and the mRNA strand copies a strand of DNA. Once it does this, mRNA leaves the nucleus and goes into the cytoplasm. mRNA will then attach itself to a ribosome. The strand of mRNA is then read in order to make protein. They are read 3 bases at a time. These bases are called codons. tRNA is the fetching puppy. It brings the amino acids to the ribosome to help make the protein. The 3 bases on tRNA are called anti-codons. Remember, amino acids are the building blocks for protein. On the mRNA strand, there are start and stop codons. Your body knows where to start and stop making certain proteins. Just like when we read a sentence, we know when to start reading by the capitalized word and when to stop by the period.



### **PART B. Answer the following questions on your paper:**

1. What is the first step of protein synthesis?
2. What is the second step of protein synthesis?
3. Where does the first step of protein synthesis occur?
4. Where does the second step of protein synthesis occur?
5. Nitrogen bases are read \_\_\_\_ bases at a time.
6. The bases on the mRNA strand are called \_\_\_\_\_.
7. The bases on tRNA are called \_\_\_\_\_.
8. What is the start codon?
9. What are the stop codons?
10. A bunch of amino acids put together makes \_\_\_\_\_.

**PART C. Use your codon chart to determine the amino acid sequence. Remember to read through the strand and ONLY start on AUG and STOP when it tells you to stop. Follow example below:**

Example:

DNA →	AGA CGG TAC CTC CGG TGG GTG CTT GTC TGT ATC CTT CTC AGT ATC
mRNA →	UCU GCC AUG GAG GCC ACC CAC GAA CAG ACA UAG GAA GAG UCA UAG
protein →	start - glu - ala - thre - hist - asp - glu-threo-stop acid acid

- DNA → CCT CTT TAC ACA CGG AGG GTA CGC TAT TCT ATG ATT ACA CGG TTG CGA TCC ATA ATC  
mRNA →  
protein →
- DNA → AGA ACA TAA TAC CTC TTA ACA CTC TAA AGA CCA GCA CTC CGA TGA ACT GGA GCA  
mRNA →  
protein →
- DNA → TAC CTT GGG GAA TAT ACA CGC TGG CTT CGA TGA ATC CGT ACG GTA CTC GCC ATC  
mRNA →  
protein →
- DNA → TAA ACT CGG TAC CTA GCT TAG ATC TAA TTA CCC ATC  
mRNA →  
protein →
- DNA → CTA TTA CGA TAC TAG AGC GAA TAG AAA CTT ATC ATC  
mRNA →  
protein →
- DNA → TAC CTT AGT TAT CCA TTG ACT CGA ATT GTG CGC TTG CTG ATC  
mRNA →  
protein →
- DNA → ACC CGA TAC CTC TCT TAT AGC ATT ACA AAC CTC CGA GCG  
mRNA →  
protein →
- DNA → TAC AGA CGG CAA CTC TGG GTG CTT TGT TCT CTT CTC AGT ATC  
mRNA →  
protein →