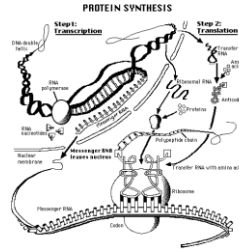


From DNA to Proteins



1. The DNA sequence is read in three nitrogen base units. The following DNA sequence represents the gene that codes for a protein in a single-celled organism:

ACAGCAGGTTTAAGTTTTACT

2. Draw a line after every third base in the DNA sequence above to separate the strand into three-base segments.

3. Record the three-base segments in the boxes below:

ACA	GCA	GGT	TTA	AGT	TTT	ACT
-----	-----	-----	-----	-----	-----	-----

4. Transcribe the three-base segments above into codons that make up mRNA (Remember that thymine is replaced by uracil in RNA):

UGU	CGU	CCA	AAU	UCA	AAA	UGA
-----	-----	-----	-----	-----	-----	-----

5. In which organelle does this process take place?

mRNA is created from the DNA template (gene) in the nucleus

6. Why does mRNA need to be created? Where does the mRNA sequence go?

mRNA needs to be created because it is small enough to leave the nucleus and deliver the code for the protein to the ribosome.

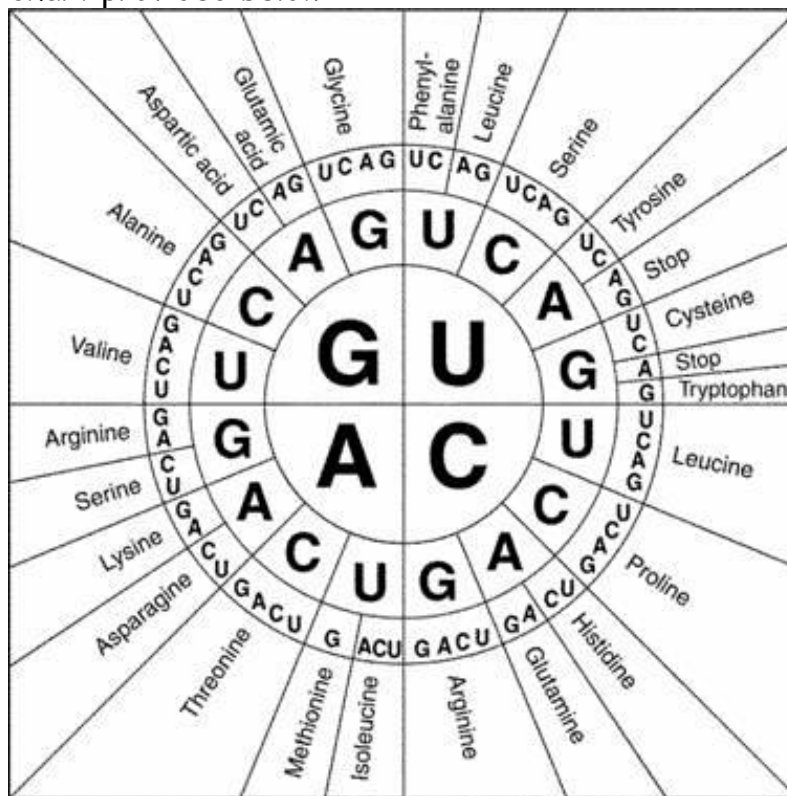
7. Now that we have the "recipe" for the protein what else is needed to synthesize it?

Once we have the recipe, we need the "ingredients" (amino acids) to make the protein.

8. What molecules are responsible for delivering the amino acids to the ribosome to enable the protein to be made?

tRNA transports the amino acids to the ribosome (goes to correct codon because it has corresponding anticodon)

9. Use the wheel of amino acids below to translate the mRNA codons to determine the necessary amino acids for the protein. Record the amino acids in the chart provided below:



UGU CGU CCA AAU UCA AAA UGA

CYS	ARG	PRO	ASP	SER	LYS	STOP
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