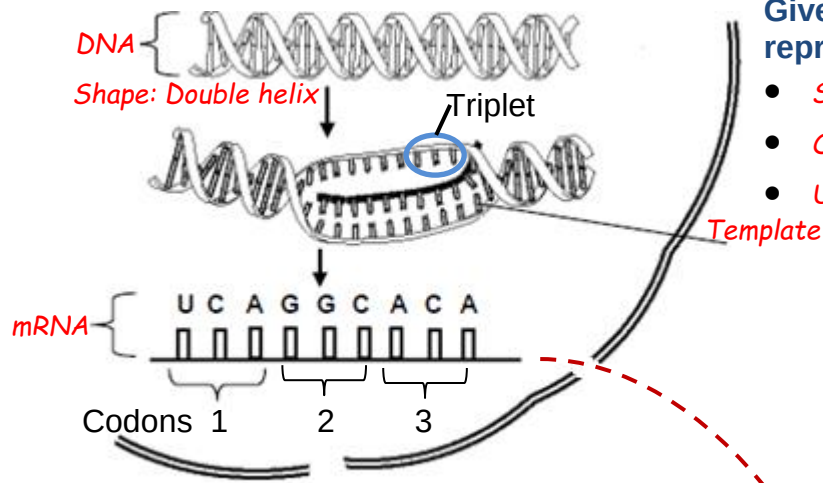


Protein synthesis: *The process by which proteins are made in each cell of an organism to form enzymes, hormones and new structures for cells.*



Give 3 reasons why this diagram represents transcription

- Small portion of DNA unwinds
- One complimentary strand (mRNA) forms
- Uracil present on the complimentary strand

What is given: DNA, mRNA or tRNA?
Triplet / Codon or Anti Codon?

Base triplet of DNA	Amino acid coded for
AGT	Serine
CCG	Glycine
TGT	Threonine
GTA	Histidine
CAA	Valine
TCC	Arginine
ACA	Cysteine

Describe the role of DNA in Protein synthesis:

- Provides the base code for the formation of a particular protein
- Forms a smaller mRNA molecule, as the DNA is too big to move through the nucleopore, towards the ribosome

Explain how a mutation on the DNA affects Protein Synthesis

- Mutation on the DNA leads to a change in the mRNA sequence
- Changed mRNA sequence leads to a change in the amino acid sequence (Different tRNA, carrying a different amino acid moves to changed mRNA)
- Resulting in the formation of a different protein molecule

Name the amino acid that would form at X, if a mutation caused Adenine to replace Uracil. Explain your Answer:

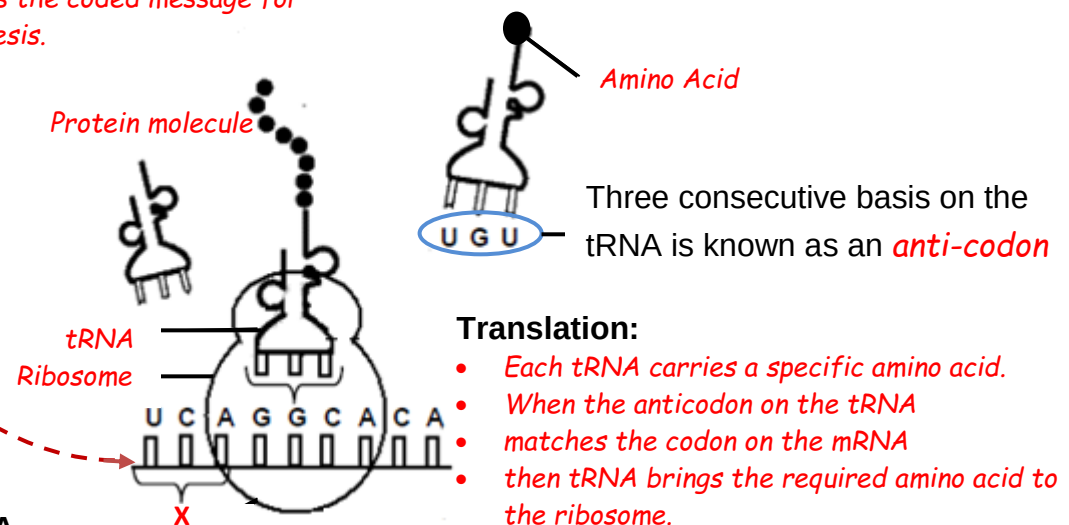
- (UCA changes to ACA)... The amino acid Threonine (DNA code ACA), replaces the amino acid Serine (DNA code UCA)
- May lead to the formation of a different protein molecule

Transcription

- Portion of double helix DNA unwinds
- The double-stranded DNA unzips/weak hydrogen bonds break
- to form two separate strands.
- One strand is used as a template
- to form mRNA
- using free RNA nucleotides from the nucleoplasm.
- The mRNA is complementary to the DNA.
- mRNA now has the coded message for protein synthesis.

Identify the amino acid at:

- Codon 1: Serine
- Codon 2: Glycine
- Codon 3: Threonine



Translation:

- Each tRNA carries a specific amino acid.
- When the anticodon on the tRNA matches the codon on the mRNA
- then tRNA brings the required amino acid to the ribosome.
- Amino acids become attached by peptide bonds
- to form the required protein.

Functions of tRNA

- Picks up specific amino acids in the cytoplasm and
- Transfer the amino acids to the specific codon on the mRNA at the ribosome (site of protein synthesis)