

The role of nucleic acids relates to all the stages of protein synthesis; transcription and translation, because any complication in the nucleic acids, complicates the roles of the nucleic acid in the DNA of the organism. In translation, information in RNA is used to create amino acids to make polypeptides which make up proteins. Nucleic acids make up proteins. In transcription, the genetic information in DNA is used to convert into RNA to turn nucleic acids into duplicated nucleic acids for to make more amino acids, to make more proteins.

The stage, translation, is the most affected in protein synthesis. If this problem occurs, then the amino acid will be mis coordinated and placed into the wrong areas of the polypeptide. There may folding errors, in protein folding.

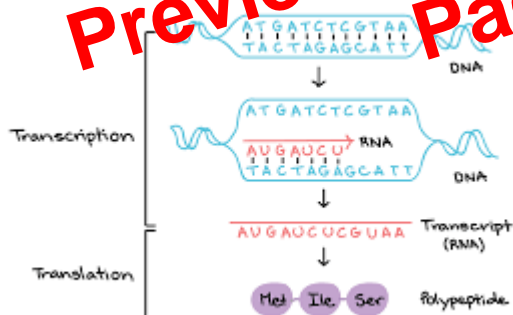
The stage, transcription when affected copies the wrong piece of DNA strand and is used to make the wrong amino acids and then the wrong proteins. The roles in nucleic acid, for example codon specifies the amino acids which are made to place into the polypeptide in the correct order.

### TRANSCRIPTION

DNA is unzipped and copied by an RNA called RNA polymerase, in the nucleus, where all or sometimes most of the genetic material is found. Only one of the strands can be copied at a time. This is transcription. This is then copied and called mRNA, which essentially is a complementary strand of DNA, as it has the exact same triplet code and bases which the original DNA has.

### TRANSLATION

MRNA is then taken to the ribosome, where the 4 types of RNA are located to begin the process of protein synthesis, by making the double strands and creating amino acids. This is translation. When MRNA enters into the ribosome, TRNA attaches its codon, an amino acid, and matches up the base pairs with one another. Adenine (A) pairs with Uracil (U), Guanine (G) pairs up with Cytosine (C). This then done correctly, makes the correct amino acids, for RNA to place into the correct places in the polypeptide to synthesise for proteins.



DNA is essentially made due to the RNA due to the stages of RNA; transcription, translation and replication. Any mistake in protein synthesis is vital and crucial towards the RNA and DNA replication of proteins and amino acids and creating the specific amino acid to place into the correct spot in the polypeptide to create a protein. A mistaken amino cause a mistake protein reducing protein function. Nucleic acids make sure this problem does not occur, by completing every step in stages and having the RNA to double check every step and stage is correct.

D1:

A mutation is the change in gene or DNA sequence, there are many forms of mutations and how the gene expression and DNA complementary sequence making the structure of the double helix, double strands are changed or interrupted in some way.