

**DNA TRANSCRIPTION**

The process of copying one simple chain of DNA is called transcription. For it to happen, the double strands separate through the action of an enzyme, permitting the enzyme RNA polymerase to connect to one of the strands. Then, using the DNA strand as a model, the enzyme begins synthesizing messenger RNA from the free nitrogenous bases that are found inside the nucleus.

1

**SEPARATION OF DNA**

When the DNA is to be transcribed, its double chain separates, leaving a sequence of DNA bases free to be newly matched.

2

**TRANSCRIPTION**

One of the chains, called the transcript, is replicated by the addition of free bases in the nucleus through the action of an enzyme called RNA polymerase. The result is a simple chain of mRNA (messenger RNA).

**SYNTHESIS OF POLYPEPTIDES**

The polypeptides form when a group of amino acids unite in a chain. For this to happen, the ribosome: translates the information that the mRNA transcribed from the nuclear DNA; codifies the amino acids and their order with the help of tRNA, through the matching of codons and anticodons; and places each amino acid exactly where it belongs.

**RIBOSOME**

The cellular organelle where the synthesis of polypeptides occurs. It helps translate the information brought by the mRNA.

**tRNA**

Transfer RNA is in charge of recognizing and translating the information that the mRNA contains.



ANTICODON

**ENZYMES**

collaborate in the formation of the polypeptide chain by making the peptide chains that join the amino acids.

3

**LEAVING THE NUCLEUS**

If the DNA were to leave the nucleus, it would get corrupted, so it is the mRNA that transcribes the DNA's information in a simple chain, which takes the information to the cytoplasm of the cell.

5

**INTERRUPTION**

The synthesis is produced between the start codon and the stop codon. Once the chain reaches the stopping point, the ribosome stops synthesizing the polypeptide, and the ribosome releases the polypeptide.

4

**TRANSLATION**

In the ribosome the translation of the mRNA to synthesize the polypeptide is initiated with the participation of tRNA.

**POLYPEPTIDES**

are formations of about 10 to 50 amino acids. Each amino acid is considered a peptide.

30

bases per second

ARE COPIED DURING THE PROCESS OF TRANSCRIPTION.

# Transcription of the Genetic Code

This complex process of translation allows the information stored in nuclear DNA to arrive at the organelles of the cell to conduct the synthesis of polypeptides. RNA (ribonucleic acid) is key to this process. The mRNA (messenger RNA) is in charge of carrying information transcribed from the nucleus as a simple chain of bases to the ribosome. The ribosome, together with transfer RNA (tRNA), translates the mRNA and assembles surrounding amino acids following the genetic instructions.

