

An RNA transcript refers to the molecule produced during the process of [transcription](#). Transcription is the first step in gene expression where the information encoded in DNA is copied into a complementary RNA molecule.

During transcription, an enzyme called RNA polymerase binds to a specific region of DNA called the promoter and initiates the synthesis of an RNA molecule. The RNA polymerase reads the DNA template strand and adds nucleotides to the growing RNA molecule, following the rules of base pairing (A with U, G with C) to form a complementary RNA strand.

The resulting RNA transcript is a single-stranded molecule that carries a copy of the genetic information from the DNA. The RNA transcript can be further processed and modified before it performs its specific function in the cell. In some cases, the RNA transcript serves as the final product itself, such as in non-coding RNA molecules or certain viral genomes.

The types of RNA transcripts include messenger RNA (mRNA), transfer RNA (tRNA), ribosomal RNA (rRNA), and other non-coding RNAs. Each type of RNA serves different roles in the cell, such as mRNA carrying the genetic information from DNA to the ribosomes for protein synthesis, tRNA bringing amino acids to the ribosome during translation, and rRNA being a structural component of ribosomes.

Overall, RNA transcripts play a crucial role in gene expression and the functioning of cells by transmitting the genetic information stored in DNA and participating in various cellular processes.

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