

University module ; Communication Techniques and English Expression (TCE 02)

Course Module manager ; Prof Beloucif, Prof Djouama and Prof Yahiaoui

TD Module manager ; Prof Beloucif, Prof Djouama, Prof Yahiaoui Prof Guellatti, Prof Abba, Prof Mihi, Prof Agouni, Prof Dehman and Prof Halimi

TD N° : 03

The difference between DNA and RNA

DNA (Deoxyribonucleic Acid) and RNA (Ribonucleic Acid) are two types of nucleic acids present in living organisms, each with specific roles in storing and transmitting genetic information and in various cellular processes. DNA serves as the repository of genetic information, while RNA plays a crucial role in gene expression and protein synthesis. Together, they enable the transmission and execution of essential genetic instructions for vital processes in organisms.

DNA (Deoxyribonucleic Acid) and RNA (Ribonucleic Acid) are two types of nucleic acids found in living organisms, but they have several key differences:

1. ****Sugar Molecule****: DNA contains deoxyribose sugar, while RNA contains ribose sugar. This difference is reflected in their names: deoxyribonucleic acid and ribonucleic acid.
2. ****Bases****: Both DNA and RNA contain adenine (A), cytosine (C), and guanine (G). However, DNA contains thymine (T) as its fourth base, while RNA contains uracil (U) instead of thymine.

3. ****Double-stranded vs. Single-stranded****: DNA is typically double-stranded, forming a double helix structure, while RNA is usually single-stranded. However, RNA can fold back on itself to form secondary structures.

4. ****Function****: DNA primarily serves as the genetic blueprint of an organism, carrying the instructions necessary for growth, development, and functioning. It resides in the cell nucleus and undergoes replication to pass on genetic information to new cells. RNA, on the other hand, plays various roles in protein synthesis, gene regulation, and other cellular processes. It acts as a messenger between DNA and ribosomes during protein synthesis (mRNA), helps in bringing amino acids to ribosomes (tRNA), and forms a structural and catalytic component of ribosomes (rRNA), among other functions.

5. ****Stability****: DNA is generally more stable than RNA due to the absence of a hydroxyl group at the 2' carbon of the sugar molecule in deoxyribose, which makes it less prone to hydrolysis.

These differences in structure and function reflect the unique roles that DNA and RNA play in the cellular processes of living organisms.

Question ; analyze the text by extracting. scientific terminologies and the main ideas (using taking notes method) supported by images illustrating both DNA and RNA structure.

Note ; "Work in groups (3-4 Students) and use communication Tools (Google Translate and Chat GPT application - is optional-).