

Ministry of Higher Education
Al-Mustaqbal university collage
Intelligent of Medical Systems Department



Bioinformatics

Lecture (1)

Nucleic Acids

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Nucleic acids and its functions

Nucleic acids, deoxyribonucleic acid (DNA) and ribonucleic acid (RNA), carry genetic information which is read in cells to make the RNA and proteins by which living things function. The well-known structure of the DNA double helix allows this information to be copied and passed on to the next generation.

Types of nucleic acids

- Deoxyribonucleic acid.
- Ribonucleic acid.
- Artificial nucleic acid.

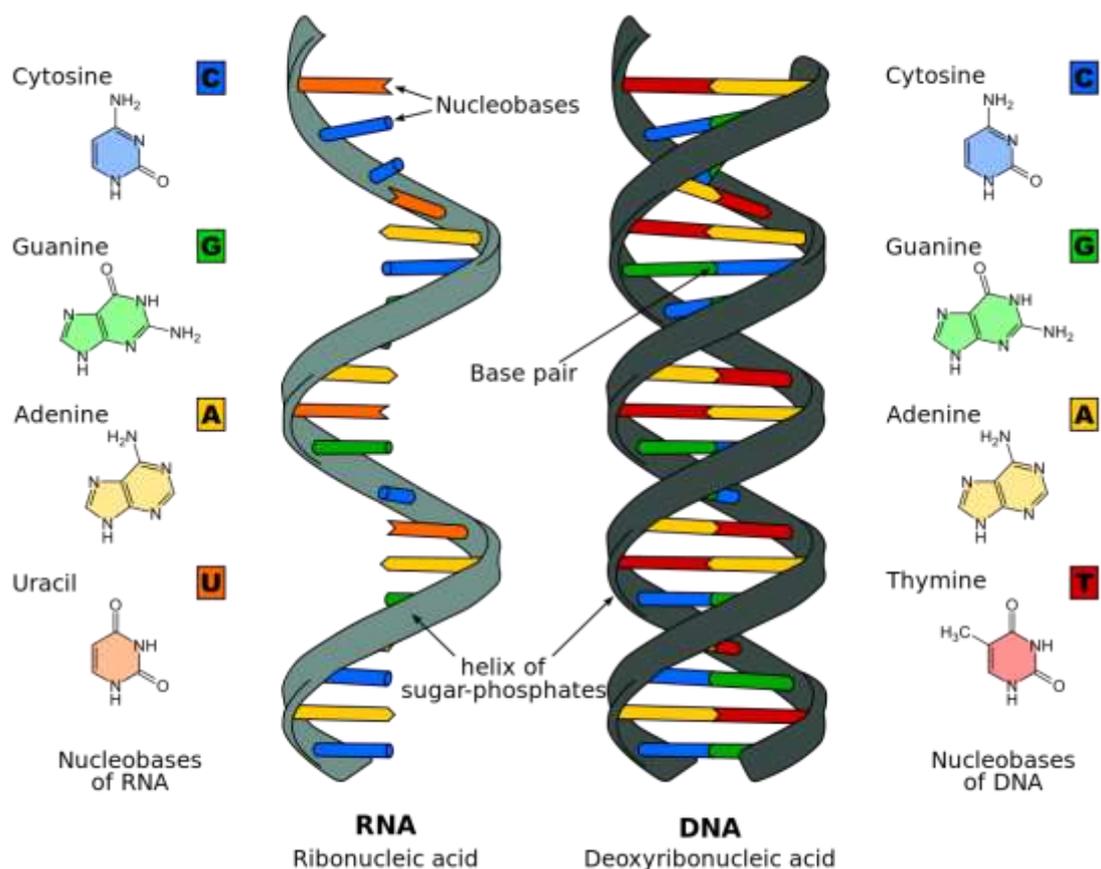


Figure (1). Types of nucleic acids.

Where are the nucleic acids??

It is found in all cells and also in some viruses. Nucleic acids have a very diverse set of functions, such as cell creation, the storage and processing of genetic information, protein building, and the generation of energy cells.

Nucleic acids components

Nucleic acids such as DNA (deoxyribonucleic acid) or RNA (ribonucleic acid) are composed of a **sugar** or derivative of a sugar (ribose or 2-deoxyribose), a **nucleobase** (cytosine, guanine, adenine, thymine, or uracil), and **phosphoric acid** and found in cell nuclei.

What is DNA and RNA differences??

DNA is a double-stranded molecule that has a long chain of nucleotides. RNA is a single-stranded molecule which has a shorter chain of nucleotides. DNA replicates on its own, it is self-replicating. RNA does not replicate on its own.

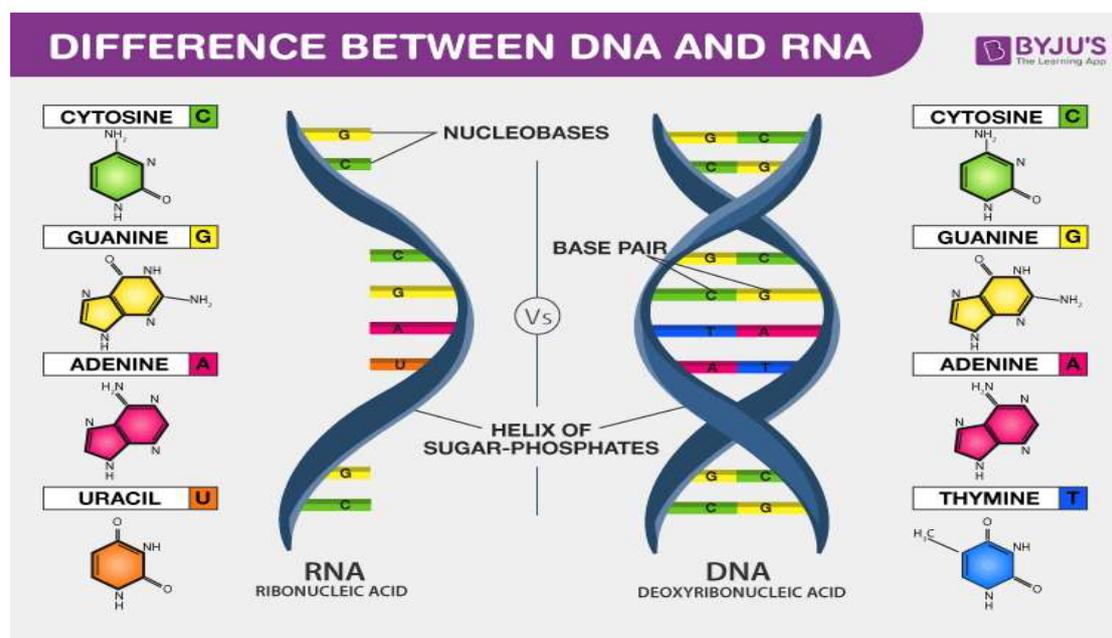


Figure (2). DNA and RNA differences.