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## NUCLEIC ACIDS

Nucleic acids are complex macromolecular biopolymers which perform the role of storing and transmitting genetic information in all living organisms. They are composed of nucleotides, which are the monomers made of three components: a 5-carbon sugar, a phosphate group and a nitrogenous base. For the first time they are detected in the nucleus of the cell.

There are two types of nucleic acids: deoxyribonucleic acid (DNA) and ribonucleic (RNA). The DNA consists of the remainder of the pentose deoxyribose, and the RNA is ribose.

Nucleic acids, like proteins, have the primary structure which is a certain sequence of nucleotide layers, as well as more complex secondary and tertiary structures that are formed by hydrogen bonds, electrostatic and other interactions.

Nucleic acids are biopolymers whose nucleotides are monomers. Nucleotides are complex ester of nucleoside and phosphoric acid and are coupled through the remainder of phosphoric acid (phosphodiester bond). Nucleoside consists of carbohydrates-pentoses (ribose or deoxyribose, depending on the type of nucleic acid) and the nitrogenous base (purine or pyrimidine). The distance between the nucleotides within the polynucleotide is 0.34 nm.

DNA is deoxyribonucleic acid. Deoxyribose: purine - guanine (G), adenine (A), pyrimidine - thymine (T) and cytosine (C). DNA often consists of two polynucleotide chains directed antiparallel.

RNA is a ribonucleic acid. Ribose: purine - guanine (G), adenine (A), pyrimidine uracil (U) and cytosine (C). The structure of the polynucleotide chain is similar to that in DNA, double-stranded RNA is found only in viruses. Due to the feature of ribosomes, RNA molecules often have different secondary and

tertiary structures, forming double-stranded regions through complementary interactions inside the molecule.

Thus, nucleic acids occupy an important place in human life. They perform in the body the following functions: DNA - the storage of hereditary information, RNA - the implementation of genetic information and catalytic function.

REFERENCES

4. DNA from the beginning [Electronic resource].- Electronic data. Mode of access: http://www.dnaftb.org/ – Title of the screen

5. Nucleic Acids Database [Electronic resource].- Electronic data. Mode of access: http://www.dnaftb.org/ – Title of the screen