

Наука - это интересно!



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Deoxyribonucleic acid (DNA) is a nucleic acid that contains the genetic instructions used in the development and functioning of all known living organisms and some viruses. The blueprints or a recipe, or a code, since it contains the instructions needed to construct other components of organisms that carry this genetic information are called genes. But other DNA sequences have structural purposes, or are involved in regulating the use of this genetic information.

Chemically, DNA consists of two long polymers of simple units called nucleotides, with backbone made of sugars and phosphate groups joined by ester bonds. These two strands run in opposite directions to each other and are therefore anti-parallel. Attached to each sugar is one of four types of molecules called bases. It is the sequence of these four bases along the backbone that encodes information. This information is read using the genetic code, which specifies the sequence of the amino acids within proteins. The code is read by copying stretches of DNA into the related nucleic acid RNA, in a process called transcription.

Within cells, DNA is organized into long structures called chromosomes. These chromosomes are duplicated before cells divide, in a process called DNA replication. Eukaryotic organisms (animals, plants, fungi, and protists) store most of their DNA inside the cell nucleus and some of their DNA in organelles, such as mitochondria or chloroplasts. In contrast, the DNA only prokaryotes (bacteria and archaea) stores their DNA only in the cytoplasm. Within the chromosomes, chromatin proteins such as histones compact and organize DNA. These complex structures guide the biochemical processes of DNA replication and other processes, helping control which parts of the DNA are transcribed.

DNA is a long molecule that is made up of two strands that are twisted around each other. The strands are made of a sugar-phosphate backbone and nitrogenous bases. The bases are attached to the sugar-phosphate backbone and are held together by hydrogen bonds. The sequence of the bases along the strands is the genetic code. The genetic code is a set of rules that determines how the sequence of bases is translated into a sequence of amino acids, which are used to build proteins. The genetic code is universal, meaning that it is the same in all living organisms. The genetic code is also degenerate, meaning that some amino acids can be encoded by more than one sequence of bases. The genetic code is also non-overlapping, meaning that the bases are read in a continuous sequence without any gaps or overlaps. The genetic code is also commaless, meaning that there are no punctuation marks to indicate the end of a word or a sentence. The genetic code is also non-ambiguous, meaning that each sequence of bases codes for only one amino acid. The genetic code is also non-punctuated, meaning that there are no spaces or commas between the bases. The genetic code is also non-overlapping, meaning that the bases are read in a continuous sequence without any gaps or overlaps. The genetic code is also commaless, meaning that there are no punctuation marks to indicate the end of a word or a sentence. The genetic code is also non-ambiguous, meaning that each sequence of bases codes for only one amino acid. The genetic code is also non-punctuated, meaning that there are no spaces or commas between the bases.

DNA exists in many possible forms. The most common form is the B-DNA, which is a right-handed helix. Other forms include A-DNA, which is a compact, wide, shallow groove, and Z-DNA, which is a narrow, deep, sharp groove. The A-DNA form is found in the cores of nucleosomes and in the DNA of some viruses. The Z-DNA form is found in the DNA of some viruses and in the DNA of some eukaryotes. The B-DNA form is the most common form of DNA in living organisms.

The first published reports of DNA structure were published by Watson and Crick in 1953. Their model was based on the work of Rosalind Franklin and Maurice Wilkins, who had used X-ray diffraction to study the structure of DNA. Watson and Crick's model was a double helix, with the two strands running in opposite directions and being held together by hydrogen bonds between the nitrogenous bases. The model was a major breakthrough in the understanding of DNA structure and function.

Although the B-DNA form is the most common form of DNA in living organisms, other forms of DNA are also found. The A-DNA form is a compact, wide, shallow groove, and the Z-DNA form is a narrow, deep, sharp groove. The A-DNA form is found in the cores of nucleosomes and in the DNA of some viruses. The Z-DNA form is found in the DNA of some viruses and in the DNA of some eukaryotes. The B-DNA form is the most common form of DNA in living organisms.

Compared to B-DNA, the A-DNA form is a compact, wide, shallow groove, and the Z-DNA form is a narrow, deep, sharp groove. The A-DNA form is found in the cores of nucleosomes and in the DNA of some viruses. The Z-DNA form is found in the DNA of some viruses and in the DNA of some eukaryotes. The B-DNA form is the most common form of DNA in living organisms.



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Deoxyribonucleic acid (DNA) is a nucleic acid that contains the genetic instructions used in the development and functioning of all known living organisms and some viruses. The main role of DNA molecules is the long-term storage of information. DNA is often compared to a set of blueprints or a recipe, or a code, since it contains the instructions needed to construct other components of organisms that carry this genetic information. The DNA genes, but other DNA sequences have structural purposes, or are involved in regulating the use of this genetic information.

Chemically, DNA consists of two long polymers of simple units called nucleotides, with backbone made of sugars and phosphate groups joined by ester bonds. These two strands run in opposite directions to each other and are therefore anti-parallel. Attached to each sugar is one of four types of molecules called bases. It is the sequence of these four bases along the backbone that encodes information. This information is read using the genetic code, which specifies the sequence of amino acids within proteins. The code is read by copying stretches of DNA into the related nucleic acid RNA, in a process called transcription.

Within cells, DNA is organized into long structures called chromosomes. These chromosomes are duplicated before cells divide, in a process called DNA replication. Eukaryotic organisms (animals, plants, fungi, and protists) store most of their DNA inside the cell nucleus and some of their DNA in organelles, such as mitochondria or chloroplasts. In contrast, only prokaryotes (bacteria and archaea) store their DNA only as a single circular chromosome, whereas some DNA viruses have a genome of linear DNA. Within eukaryotic chromosomes, DNA is tightly packed into compact and ordered structures called nucleosomes. These are further organized into higher-order structures, which parts of the genome are active at any given time.

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DNA exists in many forms. It can be found in the nucleus of eukaryotic cells, in the cytoplasm of prokaryotic cells, and in the heads of some viruses. The DNA in the nucleus is organized into chromosomes. The DNA in the cytoplasm is organized into plasmids. The DNA in the heads of viruses is organized into viral genomes.

The first published reports of DNA structure were made by Watson and Crick in 1953. Their model was based on X-ray diffraction data collected by Rosalind Franklin and Maurice Wilkins. The model showed that DNA is a double helix. The two strands are twisted around each other and are held together by hydrogen bonds between the nitrogenous bases.

Although the B-DNA form is the most common, other forms of DNA exist. These include A-DNA, C-DNA, D-DNA, E-DNA, G-DNA, H-DNA, I-DNA, J-DNA, K-DNA, L-DNA, M-DNA, N-DNA, O-DNA, P-DNA, Q-DNA, R-DNA, S-DNA, T-DNA, U-DNA, V-DNA, W-DNA, X-DNA, Y-DNA, and Z-DNA.

Compared to B-DNA, the A-DNA form is more compact. It is a right-handed helix with a deep major groove and a shallow minor groove. The A-DNA form is found in the DNA of some viruses and in the DNA of some bacteria.



$$\binom{A}{k} \binom{B}{n-k} = \binom{A+B}{n}$$

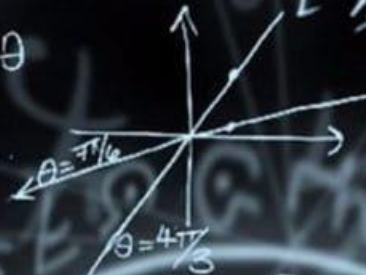
$$\sum_{x=0}^{\infty} P(x) = 1$$

$$P_2(x_2) = \int$$

$$P(x) = \begin{cases} 0 & \text{for } |x| > a \\ \frac{P(x)}{2} & \text{when } |x| < (x-a)^n \end{cases} = \sum_{k=1}^n \frac{A_k}{(x-a)^k}$$

$$p dv = - \int p \left(\frac{p}{\rho} \right) \frac{1}{r^2} dr$$

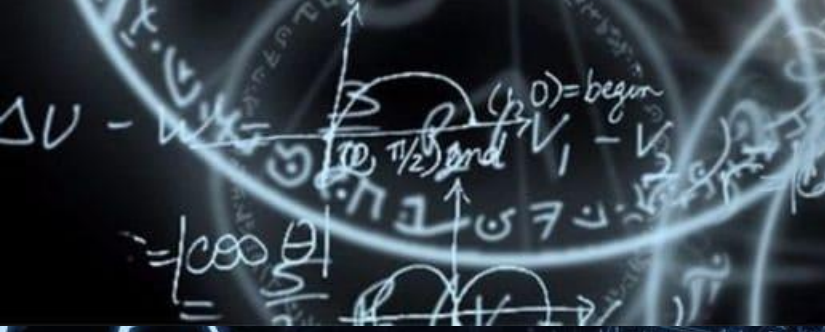
$$R(T_1 - T_2) = -nR \left[\frac{p_2 v_1}{na} - \frac{p_1 v_2}{na} \right]$$



θ	r
$7\pi/6$	$-1/2$
$4\pi/3$	$-\sqrt{3}/2$

$$R(T_3 - T_2) = \frac{3}{2} nR \left[\frac{p_2 v_1}{na} - \frac{p_1 v_2}{na} \right]$$

$$r = \cos \theta \text{ for } 0 \leq \theta \leq \pi/2$$



$$\delta(x) = \lim_{\epsilon \rightarrow 0} P(\epsilon, x)$$

$$\frac{a}{b^2} n$$

$$\sum_{n=1}^{\infty} \frac{2n-1}{(2n)!} \int_0^{\pi/2} \sin^{2n}(x) dx$$

$$P(x)$$



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