Gene

A gene is the basic unit of genetic information (the basic unit of heredity). It is a certain stretch of DNA (sequence of nucleotides) on a chromozome.

General characteristics of the gene

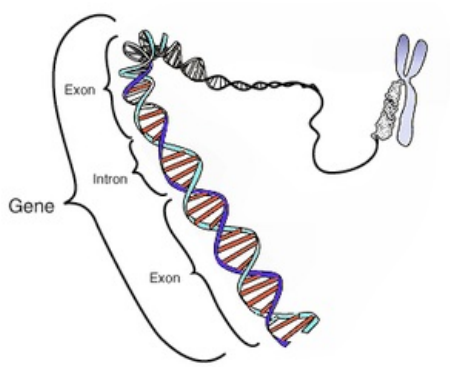
- a gene can occur in different forms – **alleles**
- we refer to the set of all alleles in the cell of a given individual as **genotype**
- the set of all the DNA of a given organism is called the **genome**
- the human genome consists of a *nuclear genome* and an *extranuclear genome* (mitochondrial)
- genes are arranged linearly on chromosomes and their specific location (locus) is unchanging
- all genes on one chromosome form a **linkage group**
- it includes so-called **exons** and **introns** (cut out during DNA editing)

Gene species

- genes can be divided into two basic groups *according to function:*

1. **Structural genes** – encode the primary structure of proteins, such as proteins with a biochemical, physiological or structural function
2. **Genes for functional RNAs** – their products, unlike structural genes, are not translated.

   They are mainly genes for tRNA and rRNA (more about tRNA and rRNA on the RNA page).



Chromosome DNA developed.

Gene function

- one gene can condition the creation of one specific trait **(monogenic inheritance)**
- the determination of one trait by one gene occurs more rarely than the realization of a trait after the interaction of a larger number of genes **(oligogenic**, or **polygenic inheritance)**
- more often, the formation of a trait depends on gene interactions, i.e. the specific form of the trait is determined by the alleles of several participating genes

Gene structure..

- another example of the multifacetedness of genetic information is the so-called **gene families** – gene family is a group of genes with a similar sequence that have the same or similar biological function

Links

Related articles

- Alleles
- Phenotype
- Genome
- Genotype
- Locus
- Gene structure and function
- Transcription
- Types of inheritance
- Traits