

GENETIC AND EPIGENETIC CONTROL OF CELL FUNCTION

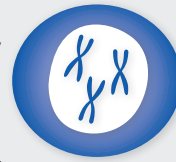
The genetic material of a cell comprises strings of **deoxyribonucleic acid (DNA)**, a complex molecule comprised of four units called bases.



DNA bases are organized into **genes**. The order, or sequence, of the bases provides the code used by the cell to produce **ribonucleic acid (RNA)**, followed by the various proteins the cell needs to function.



The entirety of a person's DNA is called the **genome**. Almost every cell in the body contains a copy of the genome. The genome is packaged together with proteins known as histones into structures called **chromosomes**.



Special factors, called **epigenetic marks**, can tag DNA or attach to histones. The presence or absence of these factors determines whether a gene is accessible for reading. The sum of these marks across the entire genome is called the **epigenome**.



The accessible genes within each cell are read to produce the proteins that ultimately define the **function of the cell and the tissue** in which the cell resides.

DNA

RNA

PROTEIN

CELL &
TISSUE
FUNCTION