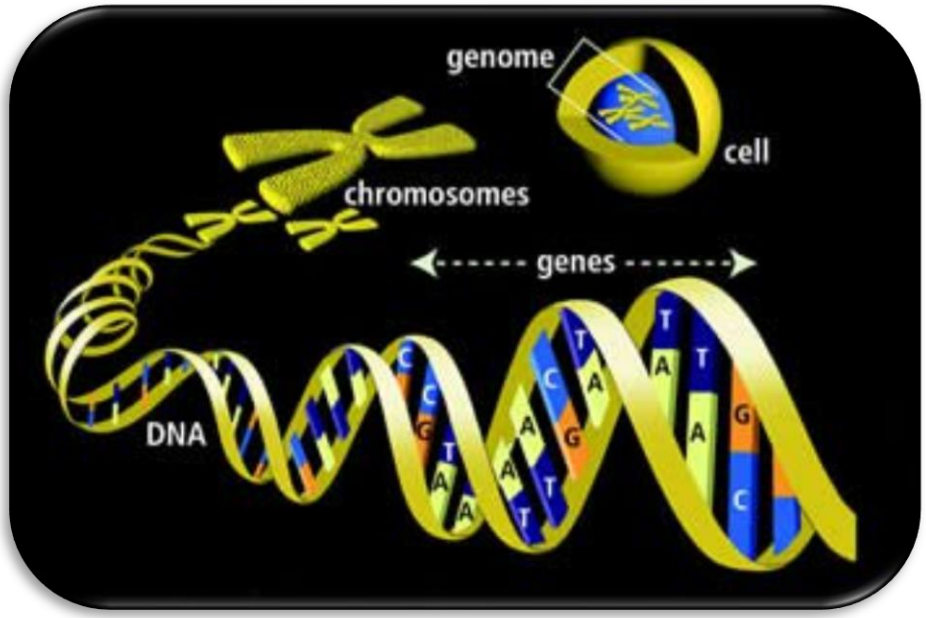
DNA Extraction From Blood

Genome:

- The genome is the genetic material of an organism.
- The genomes of almost all organisms are DNA (deoxyribonucleic acid) .
- The only exceptions being some viruses that have RNA (ribonucleic acid), genomes.
- DNA–protein complexes called chromosomes.



DNA extraction:

- DNA ,isolation is an essential technique in molecular biology.

- It is the first step for studying DNA!! ; the study of specific DNA sequences, the analysis of genomic structure, and gene expression…..etc.

- Practically DNA can be isolated from any part of human body.

➔ Choose the correct source !

The purpose of DNA isolation is to separate DNA from all the components of the cell resulting in a homogeneous DNA preparation that represent the entire genetic information contained within the cell.

Method of DNA extraction:

- Many different methods and technologies are available for the isolation of genomic DNA.
- All these methods involve: cell lysis, proteins and RNA removal, precipitation of DNA.

Practical Part

Aim:

- To isolate pure genomic DNA from Rat blood sample.

Blood sample??

Principle:

- They involve the physical and chemical processes of tissue homogenization (to increase the number of cells or the surface area available for lysis), cell permeabilization, cell lysis (using hypotonic buffers).
- Removal of nucleases, protein degradation, protein precipitation.
- Solubilization of nucleic acids, for following techniques and studies.
- Finally various washing steps.

- Note: Cell permeabilization may be achieved with the help of non-ionic (non DNA-binding) detergents such as Triton.

Results:

- Cloudy precipitation can be seen by the naked eye, and it represent the isolated DNA.

- The **concentration, purity, and integratiy** of the extracted nucleic acid may need to be determined.