

Chromosomes

Chromosomes are the nuclear components of special organisation, individuality and function. they are capable of self reproduction and play a vital role in heredity, mutation, variation and evolutionary development of the species.

Human Chromosomes

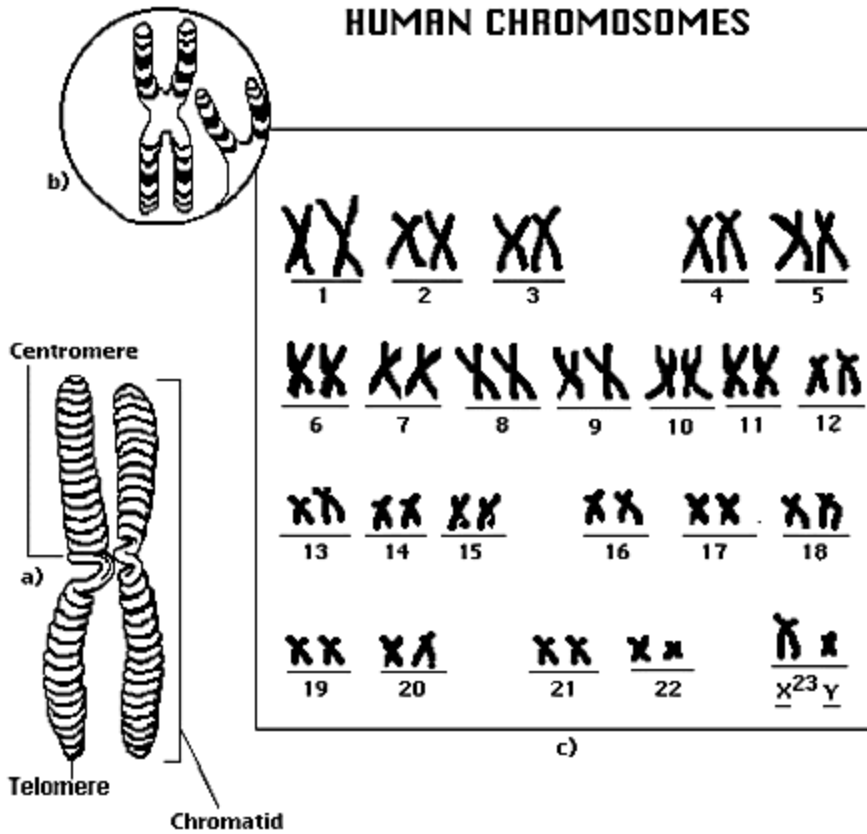
Human Chromosomes consists of 23 pairs of which 22 pairs are autosomes and the 23rd pair is the sex chromosomes. The 23 pairs are classified into groups and arranged in order.

<i>Group A</i> (1-3)	Large metacentric (nos 1 & 3) or sub-metacentric (no. 2). Chromosomes readily distinguished from each other by size and centromere positions.
<i>Group B</i> (4-5)	Large sub-metacentric chromosomes which are difficult to distinguish from each other.
<i>Group C</i> (6-12, X)	Medium sized sub-metacentric chromosomes. The X Chromosomes resembles the longer chromosomes in this group. This large group is the one which presents major difficulty.
<i>Group D</i> (13-15)	Medium sized acrocentric chromosomes with satellites.
<i>Group E</i> (16-18)	Relatively short metacentric chromosomes (no.16) or sub-metacentric chromosomes (nos.17 & 18)
<i>Group F</i> (19-20)	Short meta centric chromosomes
<i>Group G</i> (21-22, Y)	Short acrocentric chromosomes with satellites. The Y chromosomes is similar to these chromosomes but bears no satellites.

Karyotype and Idiogram

The characters by which a set of the chromosomes of a species is identified, are known as their *karyotypes*. When the karyotypes of a species are represented by a diagram then such diagram is called *idiogram*.

HUMAN CHROMOSOMES



Cytogenetic Functions of Chromosomes

The Chromosomes are the most significant components of the cell. They control most of the cell biological and genetic activities of a species. They contain the genetic material, the DNA which ultimately influences all the biological phenomena at the molecular, physiological and gross morphological levels. In forthcoming chapters, an attempt shall be made to describe the cytological, molecular biological and genetic role of chromosomes.