Meiosis

INTRODUCTION

The process of Cell meiosis occurs through cell division. In this Stage, the cells generate gametes (egg or sperm) and carry half of the normal chromosome count. After fertilization, the resulting embryo formation (after gamete) Cell then finally contain the right number of chromosomes. Meiosis is a special type of cell differentiation that produces gametes with half as many chromosomes. Meiosis I is a type of cell division unique to germ cells, while meiosis II that is very similar to mitosis.[1]

Stages or Meiosis :

Meiosis 1 Stages

The different stages of meiosis 1 can be explained by the following phases :

- Prophase 1
- Metaphase 1
- Anaphase 1
- Telophase 1

Phases of Meiosis 1 :

Prophase 1

Prophase I is longer than the mitotic prophase and is further subdivided into 5 substages.

- leptotene
- zygotene
- pachytene
- diplotene
- diakinesis

Leptotene:
The volume of the nucleus is increased. Chromosomes 2n become distinct long and uncoiled, they occur in diploid number. They occur in diploid number. They contain a series of bead like chromosomes.

Zygotene:
Two homologous chromosomes approach each other and begin to pair. The pairing is called synapsis. Each pair consists of a material chromosome and a paternal chromosome. The pair so formed is called bivalents. The chromosomes become shorter and thicker. The nucleolus increase in size. The centrioles move to the opposite poles.

Pachytene:

Each individual chromosomes of each bivalent begins to split longitudinally into two similar chromatids. As a result each bivalent new contains Cour chromatids this is described as tetrad stage.

Diplotene:

In this stage the homologous chromosome repels each other. The two homologous chromosome of the diplotene the chiasmata begins to move along the lengths of the chromosomes from the center mere to words the end

Dikinesis:

Terminilization is completed in this Stage. The bivalents tend to repel each other and migrate to the periphery of the nucleus. The nucleolus disappeared and the nuclear membrane begins to disappear.

Metaphase 1:

The spindle fibers are well developed. The chromosome moves towards the equator and finally they orient. Chromatids Of each chromosome do not separate in meiosis.

Anaphase 1:

Each homologous chromosome with its two chromatids and undivided centromeres moves toward the opposite poles of the cell when separated in each chromosome the sister chromatids are connected by centromere.

Telophase 1:

The haploid number of chromosomes after reaching their respective poles become very long and uncoils. The nuclear membrane and the nucleus represent.

Prophase 2

The chromosome appears distinct with two chromatids each centriole divides into two resulting in the formation Of two centriole. Then each move to the opposite.

Metaphase 2:

The chromosome gets arranged on the equator. The two chromatids of each chromosome separated by the division of Centromere.

Anaphase 2

The separated chromatids become together chromosome and move opposite poles due the contraction of the spindle fibers.

Telophase 2

During this stage the daughter chromosomes uncoil. The nuclear surround each group.

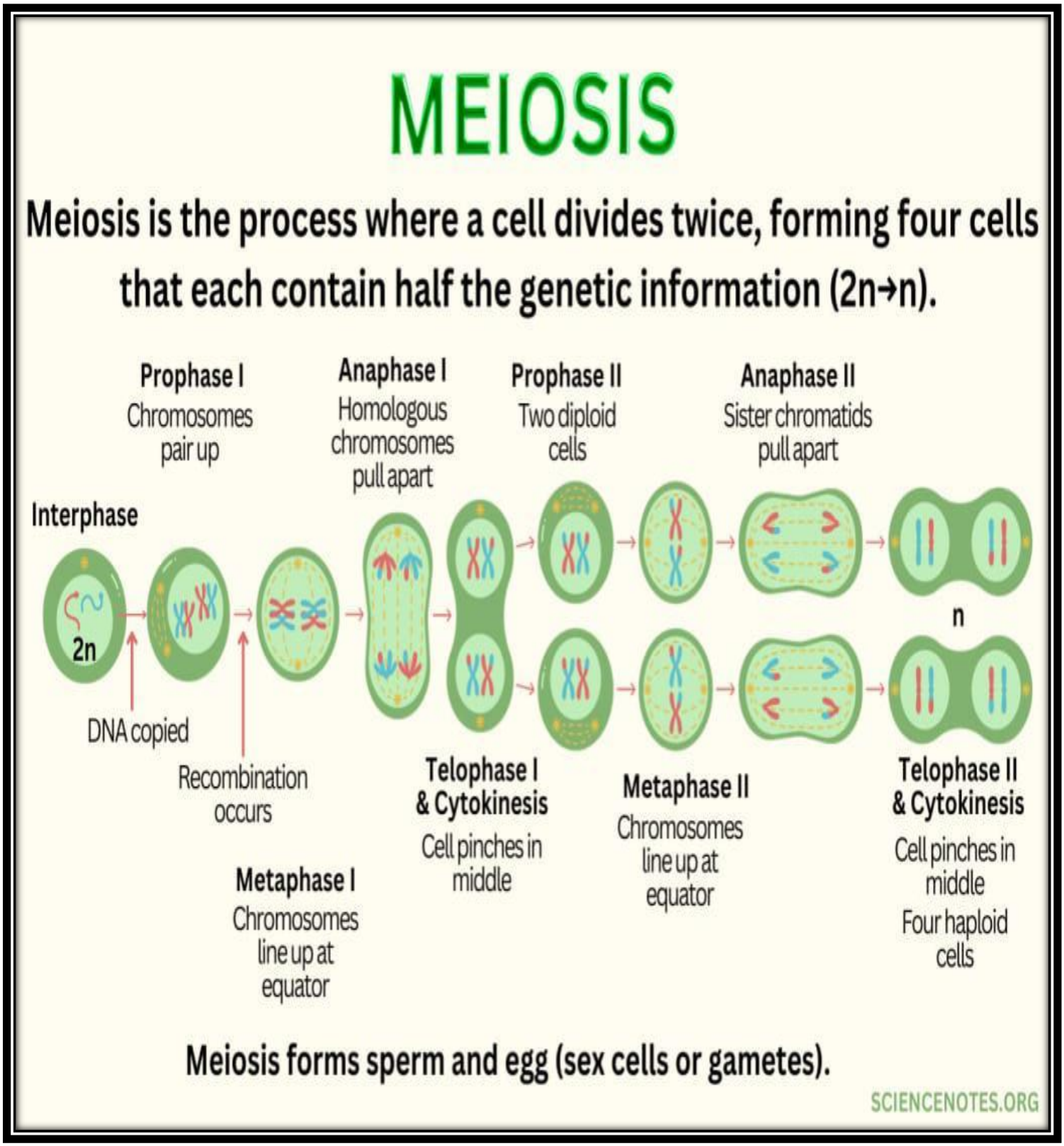

Fig: Cell division (Meiosis)