

**Genetics**

**Biology Dept.3<sup>rd</sup> stage**

**Asst. Professor. Dr. Kazhal M. Sulaiman**

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## Lec-1-

### Genetic Terms

1. **Haploid** - the condition of having only one set of chromosomes per cell (n)
2. **Diploid** - the condition of having two sets of chromosomes per cell (2n)
3. **Gamete** - a haploid (n) sex cell in plants and animals (egg or sperm)
4. **Zygote** - diploid (2n) cell resulting from the union of two gametes in sexual reproduction
- 5 **Chromosome** - structures within the nucleus of eukaryotic cells composed of chromatin and visible at cell division (condensed chromatin).
6. **Chromatin** - the complex of DNA, RNA and proteins that makes up uncondensed eukaryotic chromosomes.
7. **Homologous chromosomes** - chromosomes that are similar in morphology (shape and form) and genetic constitution. In animals one set comes from the father and the other from the mother.
8. **Chromatids** - one of the two halves of a duplicated chromosome
9. **Centromeres** - specialized constricted region of a chromatid, that contains the kinetochore; sister chromatids are joined at the centromere during cell division
- 10.**Recombination** - exchange of genetic material between chromosomes

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**11. crossover** - the breaking and rejoining of homologous (non-sister) chromatids during early prophase I of meiosis, resulting in recombination

**12. Synapsis** - the pairing of homologous chromosomes during prophase I of meiosis.

**13. Disjunction** - separation of homologous chromosomes (or sister chromatids) during anaphase.

**14. Genotype** - the genetic make-up (the assemblage of alleles) of an individual.

**15. Phenotype** - the physical or chemical expression of an organism's genes.

**16. Gene** - a discrete unit of hereditary information that usually specifies a protein; a region of DNA (locus) located on a chromosome that specifies a trait (characteristic).

**17. Alleles** - genes governing variations of the same characteristic (trait) that occupy corresponding positions (loci) on homologous chromosomes; alternative forms of a gene.

**18. Dominant allele** - an allele that is always expressed when present, regardless of whether the organism is homozygous or heterozygous for that gene.

**19. Recessive allele** - an allele that is only expressed when the organism is homozygous for that allele and not expressed when heterozygous (when paired with a dominant allele).

**20. Homozygous** - possessing a pair of identical alleles for a particular locus (gene).

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21. **Heterozygous** - possessing a pair of unlike alleles for a particular locus (gene).
  22. **Carrier** - a heterozygous individual not expressing a recessive trait but capable of passing it on to its offspring.
  23. **Parent generation (P)** - the generation that supplies gametes to the filial generation.
  24. **Filial generation (F)** - the generation that receives gametes from the parental generation.
  25. **Hybrid** - an offspring resulting from the mating between individuals of two different genetic constitutions.
  26. **Dihybrid cross** - a genetic cross that takes into account the effect of alleles at two separate loci (two different genes).
  27. **Monohybrid cross** - a genetic cross that takes into account the effect of alleles at a single locus (single gene).
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