ADVANCED BIOLOGY: THE CHROMOSOMAL BASIS OF INHERITANCE

(USE CHAPTER 15 AS A RESOURCE)

MENDELIAN INHERITANCE HAS ITS PHYSICAL BASIS IN THE BEHAVIOR OF CHROMOSOMES



1. Morgan’s Experimental Evidence: Scientific Inquiry
2. Morgan’s Choice of Experimental Organism
3. Prolific Breeding/Generation Time
4. Chromosome Number
5. Patience
6. Symbol notation
7. Correlating Behavior of a Gene’s Alleles with Behavior of a Chromosome Pair

SEX-LINKED GENES EXHIBIT UNITUE PATTERNS OF INHERITANCE

1. The Chromosomal Basis of Sex
2. Sex-Linked Gene
3. X-Linked Gene
4. Inheritance of X-Linked Genes
5. Duchenne Muscular Dystrophy
6. Hemophilia



1. X Inactivation in Female Mammals
2. Barr Body
3. Mosaic
4. Methylation
5. Calico Cats

LINKED GENES TEND TO BE INHERITED TOGETHER BECAUSE THEY ARE LOCATED NEAR EACH OTHER ON THE SAME CHROMOSOME

Linked Genes

1. How Linkage Affects Inheritance



1. If genes are on different chromosomes
2. If genes are located on the same chromosome
3. Genetic recombination
4. Genetic Recombination and Linkage
5. Recombination of Unlinked Genes: Independent Assortment of Chromosomes
6. Parental Types
7. Recombinant Types or Recombinants
8. Recombination of Linked Genes: Crossing Over
9. New Combinations of Alleles: Variation for Natural Selection
10. Mapping the Distance Between Genes Using Recombination Data: Scientific Inquiry
11. Genetic map
12. Linkage Map
13. Map Units
14. Cytogenic Maps

ALTERATIONS OF CHROMOSOME NUMBER OR STRUCTURE CAUSE SOME GENETIC DISORDERS

1. Abnormal Chromosome Number



1. Nondisjunction
2. Aneuploidy
3. Monosomic
4. Trisomic
5. Polyploidy
6. Alterations of Chromosome Structure



1. Human Disorders Due to Chromosomal Alterations
2. Down Syndrome



1. Aneuploidy of Sex Chromosomes
2. Disorders Caused by Structurally Altered Chromosomes