

Patterns of Inheritance

- I. Two types
 - A. Autosomal: Genes located on autosomes (pairs #1-22)
 1. Simple inheritance patterns
 - B. Sex-linked (X-linked): Genes located on sex chromosomes (pair #23)
 1. Males (XY)
 - a. Only inherit 1 allele because they only have 1 X chromosome (from mom)
 2. Females (XX)
 - a. Inherit 2 alleles (1 from each parent)
 - b. X-chromosome inactivation
 - i. A process that “turns off” one X chromosome in each cell
- II. Genetic Disorders
 - A. Classifications of people
 1. Unaffected: no copies of disease allele
 2. Carrier: 1 disease allele, but not sick
 3. Affected: has the disease
 - B. Four kinds of inheritance
 1. Autosomal Dominant
 2. Autosomal Recessive
 3. Sex-linked Dominant
 4. Sex-linked Recessive
 - C. Nondisjunction
 1. Homologous chromosomes or sister chromatids do not separate properly during meiosis
 2. Leads to aneuploidy (abnormal chromosome number)
 3. Examples:
 - a. Autosomal:
 - i. Trisomy 21 (Down’s syndrome)
 1. 3 copies of chromosome 21
 - b. Sex-linked:
 - i. Klinefelter Syndrome: XXY
 - ii. Turner Syndrome: X