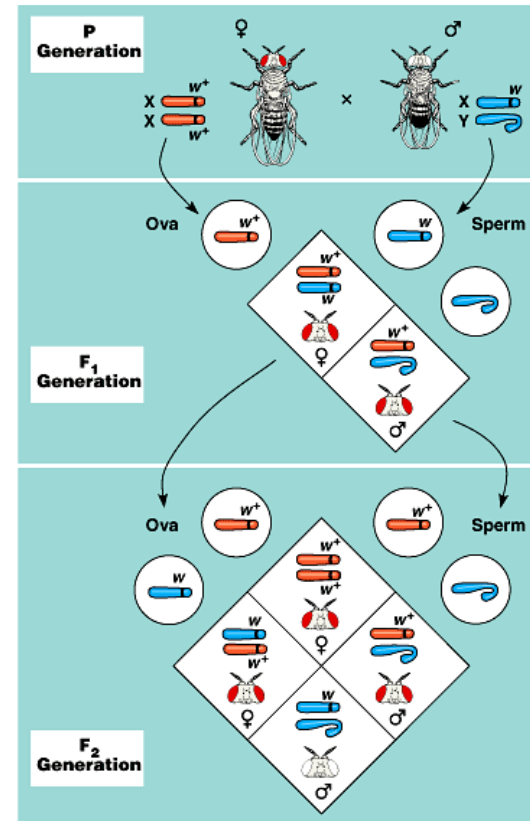


BI107 CHAP 15

Chromosomal Basis of Inheritance

Chromosomes

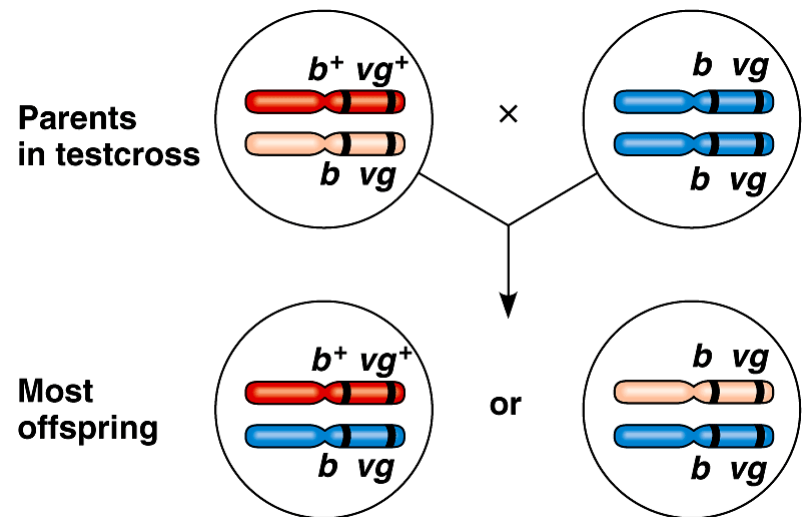
- Autosomes are non-sex chromosomes & sex chromosomes are X Y females XX Males XY
- Sex linkage – genes on sex chromosomes
- Linked genes – on same chromosomes



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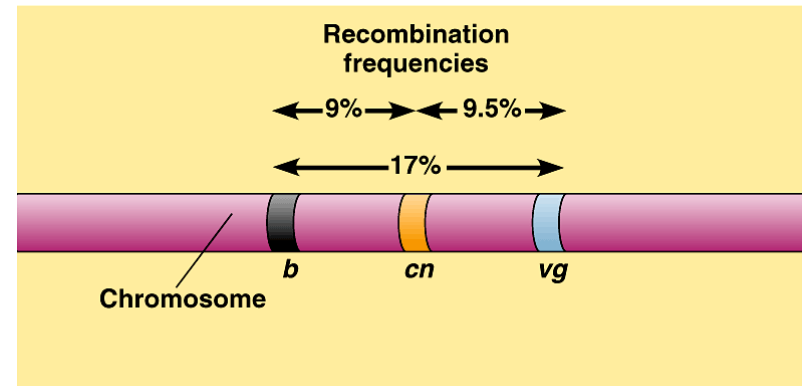
Chromosomes cont.

- Independent assortment of chromosomes & crossing over produce genetic recombinations
- For genes on different chromosomes the recombination frequency is 50% due to independent assortment of the chromosomes



Chromosomes cont.

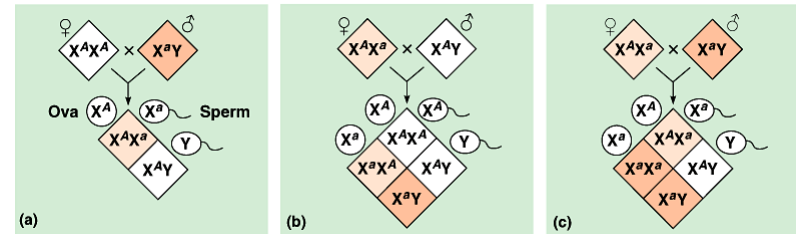
- Linked genes & crossing over used to construct genetic maps of loci of alleles on a chromosome
- Genetic map based on recombination frequencies called a linkage map



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Sex Chromosomes

- Sex chromosomes have many genes for many characters unrelated to sex
- Many sex linked disorders exist in humans

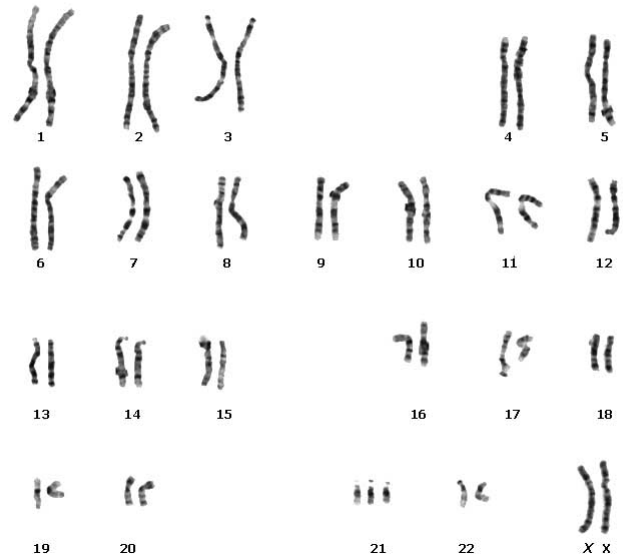


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Sex Chromosomes cont.

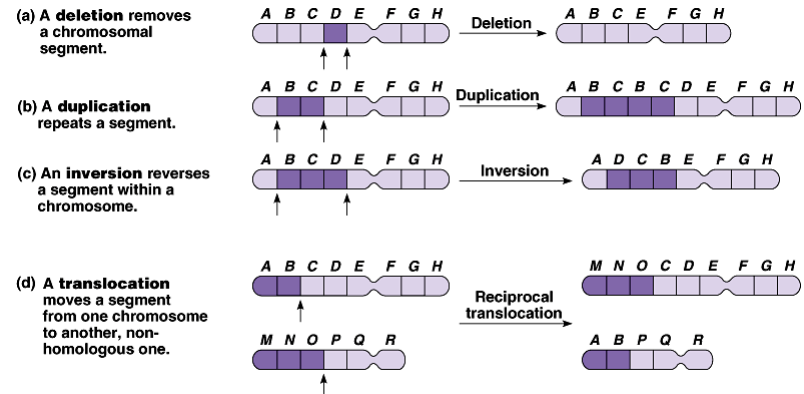
- Chromosomes which do not separate properly during meiosis I or II led to aneuploidy due to nondisjunction
- Can be monosomic or trisomic – 1 less or 1 more – Down's syndrome

Trisomy 21



Chromosome Alterations

- Deletion – chromosome fragment is lost during cell division
- Duplication – chromosome segment passed to sister chromatid so have 2 of same
- Inversion – DNA segment is switched around
- Translocation – DNA segment joins a nonhomologous chromosome



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