

Linkage

- ▶ Genes far apart on the same assort independently are not linked
- ▶ The position of the gene – locus
- ▶ Occurs in the **prophase of meiosis 1** where homologous chromosomes break at identical locations and rejoin with each other
- ▶ Two genes are said to be under linkage, or linked, when they are located on the same chromosome.
- ▶ Example: peas T=tall; t=short R=red; r=white

- ▶ Used as a mapping tool and genomic studies
- ▶ First identified in drosophila (Morgan)
- ▶ Linkage group = number of chromosomes in one set (n)
- ▶ Human($2n=46$) $n=23$; linkage group =23
- ▶ Drosophila($2n=8$) $n=4$

Types of linkages

- ▶ **Complete linkage**

- ▶ Do not get separated very closed

- ▶ Example : drosophila

- ▶ 9:3:3:1 (not) ; 8:8

- ▶ **Incomplete**

- ▶ Can separate because distance is more