

X-Linked and Autosomal Gene

Polygenic (Quantitative) Inheritance

Organelle genes (Cytoplasmic inheritance)

1. Can extend up to more than 2 genes for independent assortment.
2. ***Understand how independent assortment happens due to meiosis which results in the genetic ratios that we see.**
3. Neurospora- all meiotic products seen within the ascus. 4 individuals in an ascus- meiotic division is over.

Polygenic (Quantitative) Inheritance

1. Quantitative genetics involves the study of quantitative traits- ones that you need to measure and then quantify the trait of interest.
2. Major genes- have a large or major effect on genotypes. The genes for major genes and quantitative genes look the same- the difference arises in the phenotypic traits they produce.
3. There are many genes that contribute to a trait. Numerous genes affect a trait so they may be independently assorted.
4. Polygenes- Traits- genes sorted independently, however the environment also plays a role in the trait produced.
5. Galton and his group of scientists studied quantitative inheritance- traits that you have to measure whereas Mendel studied easy traits. This group persisted in Biometricians- approx 1920 but they felt that Mendel's laws didn't apply in order to explain quantitative inheritance.
6. Typically many genes, but don't know how many. Let's imagine we follow height [n.bk].
7. If there is genetic variation in a trait you can selectively select the trait you want.
8. In a collective study of genes, there is a particular term used- **Heritability** which is a particular portion of variation of the trait that is due to genes due to segmentation of a gene. It is a measured value. It is a value between 0-1. You give up studying individual phenotypes and instead you study collective variation- how much of the variation is due to genes?
9. People don't want to give up entirely and so they try and find new quantitative genes.
10. **QTLs- Quantitative trait loci- fancy way of saying poly gene.** People