**LAB-7------------- Pedigree analysis**

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| .**5--Y-liked inheritance** * The Y- chromosomes is relatively small and contains very few genes, there are relatively few Y-linked disorders.
* Male Infertility
* Excessive hair on the ear pinna (Hypertrichosis pinnae)
* Retinitis pigmentosa . http://t0.gstatic.com/images?q=tbn:ANd9GcQj7zZ9Ma6pZu1xaSGrnYn6yNgFqcRPDugoXj89-FAWSrxkJRD3aArYYkHB
* **6-- SEX INFLUENCED INHERITANCE**:
* These traits are expressed to some degree in both sexes, but are differentially.
* The amount of thinning of the hair or balding that is observed depends both **on genotype and the amount of testosterone exposure**
* . A male who is BB will show severe balding.
* A female who is BB will also be affected, but later in life and usually less severely, with a thinning of the hair, rather than total loss.
* A male who is heterozygous (Bb) will also become bald, whereas a female who is heterozygous will not be affected. Individuals of either sex who are fully recessive (bb) will not be affected.
* **7--Sex-limited inheritance**
* When genes are present in both sexes of [sexually reproducing](http://en.wikipedia.org/wiki/Sexual_reproduction) [species](http://en.wikipedia.org/wiki/Species) but expressed in only one sex. In other words, sex-limited genes cause the two sexes to show different [traits](http://en.wikipedia.org/wiki/Trait_%28biology%29) or [phenotypes](http://en.wikipedia.org/wiki/Phenotype) eg s ,production of milk in female.
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| * **8-Multifactorial inheritance**
* Most diseases have multifactorial inheritance patterns.
* As the name implies, multifactorial conditions are not caused by a single gene, but rather are a result of interplay between genetic factors and environmental factors.
* Diseases with multifactorial inheritance are not genetically determined, but rather a genetic mutation may predispose an individual to a disease. Other genetic and environmental factors contribute to whether or not the disease develops.
* Numerous genetic alterations may predispose individuals to the same disease (genetic heterogeneity).
* For instance coronary heart disease risk factors include high blood pressure, diabetes, and hyperlipidemia. All of those risk factors have their own genetic and environmental components.
* Thus multifactorial inheritance is far more complex than Mendelian inheritance and is more difficult to trace through pedigrees.

 **Some of the factors which contribute to the development of breast cancer** | **.**  |
| **A typical pedigree from a family with a mutation in the BRCA1 gene. Fathers can be carriers and pass the mutation onto offspring. Not all people who inherit the mutation develop the disease, thus patterns of transmission are not always obvious.**  | **Conditions with multifactorial inheritance:** **•  Alzheimers disease •  heart disease •  some cancers •  neural tube defects •  schizophrenia •  insulin-dependent diabetes mellitus •  intelligence**  |
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| * **9—Mitochondrial inheritance.**
* **Mitochondrial inheritance also called(Maternal inheritance ,Extra nuclear inh., Cytoplasmic inh.).**
* Mitochondria are organelles found in the cytoplasm of cell
* Mitochondria are unique in that they have multiple copies of a circular chromosome.
* Mitochondria are only inherited from the mother's egg, thus only females can transmit the trait to offspring, however they pass it on to all of their offspring.
* The primary function of mitochondria is conversion of molecule into usable energy. Thus many diseases transmitted by mitochondrial inheritance affect organs with high-energy use such as the heart, skeletal muscle, liver, and kidneys
* [Leber's hereditary optic atrophy](http://www.rightdiagnosis.com/l/lebers_hereditary_optic_atrophy/intro.htm)
* Myoclonus epilepsy w ith ragged-red fibers (MERRF

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