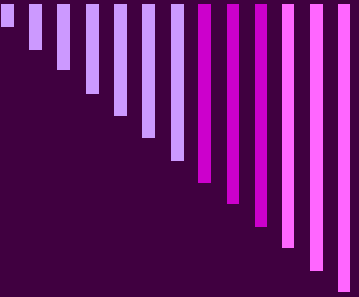




Single Trait Inheritance in Humans

(Mendelian Inheritance)

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- Most Mendelian conditions affect 1 in 10,000 or fewer individuals.
 - Examples of some Mendelian disorders in humans:
 - Cystic fibrosis
 - Maple syrup urine disease
 - Phenylketonuria (PKU)
 - Sickle cell anemia
 - Tay Sachs disease
 - Huntington's disease
 - Familial hypercholesterolemia
 - Familial Hypertrophic Cardiomyopathy
 - Polydactyly
 - Achondroplasia
-



Modes of Inheritance

- Rules that explain the common patterns that inherited characteristics follow as they are passed through families.
 - Autosomal Dominant and Autosomal Recessive are the two modes of inheritance directly derived from Mendel's laws.
 - An **autosome** is a non-sex chromosome (ex. Chromosomes #1-22 in humans)
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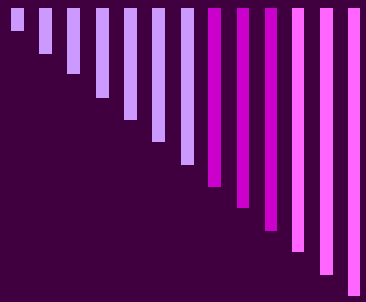
Autosomal Dominant Inheritance

- Can appear in either sex
 - If a child has the trait, at least one parent must also have it
 - Does NOT skip a generation
 - If one parent has an autosomal dominant trait and the other does not, each offspring has a 50% chance of inheriting the disorder.
-



Autosomal Recessive Inheritance

- Can also appear in either sex.
- Homozygous recessive genotype (ex. aa)
- Heterozygotes are known as “carriers” because the mutant allele is masked by a dominant allele
- Blood relatives who have children together have a higher risk of having children with an autosomal recessive condition (consanguinity)
- When both parents are carriers, offspring has a 25% chance of inheriting the disorder.



□ cracking the code

□ PBS NOVA

□ Tay Sachs- 16:15

□ Cystic Fibrosis- 58:28