

POPULATION GENETICS

- Study of the genetic composition of population + various factors determining the incidence of inherited traits in them

- Hardy - Weinberg Law • Hardy - Weinberg law / Genetic Equilibrium is a basic principle of population genetics + is based on Mendelian genetics.

States that - the relative frequencies of each gene allele tend to remain constant from generation to generation in the absence of forces that change the gene frequencies + the influences which alter the gene pool. Applicable for

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- * Infinitely large population •

- * Static population •

- * Random mating population

• Not applicable for •

- * Small population or Dynamic population or migratory population •

- * Nonrandom mating or Assortative mating •

- * mutations + Natural selection •

- * Gene flow + Genetic drift

Factors which influence the gene frequencies .

i . mutation - Influences such as ionizing radiation + certain chemicals are capable of producing mutations . most mutant genes are harmful but heterozygote of sickle cell trait is resistant to falciparum malaria

ii. Natural selection .

Darwin proposed the theory of natural selection or survival of the fittest to explain evolution . Harmful genes are eliminated from the gene pool + favorable genes are passed to the offsprings . 2x, DDT once effective against flies is now resistant