

Answer on Question #46586, Biology, Other

Question. If the homozygous recessive genotype makes up 9% of the population and the heterozygous genotype makes up 42% of the population, what is the frequency of the dominant allele in that population?

Solution. The structure of the population is: $f(AA)+f(Aa)+f(aa)=1$.

If the frequency of aa genotype is 0,09 and frequency of Aa genotype is 0,42 thus the frequency of AA genotype is: $1-0,09-0,42=0,49$.

$f(AA) = 0,49$.

The frequency of the dominant allele in that population we may calculate by the next way:

$p_A = f(AA) + 0,5 * f(Aa)$.

(0,5 - because the heterozygous have only one dominant allele).

Thus $p_A = 0,49 + 0,5 * 0,42 = 0,7$.

Answer. The frequency of the dominant allele in the population is 0,7 or 70%.