

Codominance

by Sophia



WHAT'S COVERED

In this lesson, you will learn to understand how codominance works. Specifically, this lesson will cover:

1. Codominance

Codominance is when both alleles for a trait can be expressed together. Normally, if a trait is dominant, that trait will be expressed in the phenotype of the offspring and a recessive trait will be masked. In cases of codominance, however, both traits will be expressed together rather than one dominating over another.

A common example of codominance is blood type. There are three alleles for blood type: A, B, and O. Many traits only have two alleles for the trait, but sometimes there can be three or more alleles that can represent a trait. When a gene has three or more alleles, it is called a **multiple allele system**. With blood type, A and B are considered dominant. This means that both antigens are expressed on the surface of red blood cells; O is considered a recessive gene because no antigen is expressed.



TERMS TO KNOW

Codominance

When two alleles express themselves vs. one dominating the other; an example would be A and B blood types.

Multiple Allele System

A gene that has three or more alleles or alternative sets of genes, again an example would be the A.B.O. blood group.

2. Alleles for Blood Type

Let's say a person has a genotype of AA or AO. Remember, for each trait, there will always be two alleles, one inherited from the mother and one from the father. Even though there are three possible alleles for blood type, there is only going to be two present in a person's genotype. If a person has AA or AO, then their blood will be type A.

Keep in mind the recessive gene is masked when combined with a dominant gene. In this case, A is dominant over O, meaning the O allele does not influence the phenotype.

Let's say a person's genotype is BB or BO. Again, O is recessive so it will be masked by the B allele. This person will end up with a phenotype of type B blood as a result of these genotypes.

Now imagine a person inherits an A allele from their mother and a B allele from their father. As mentioned earlier, these two alleles can be expressed together. The A allele does not mask the B allele, and the B allele does not mask the A allele. They are both dominant, and the phenotype of this person will be type AB blood.

OO is the last genotype that could exist. In this case, the person has two recessive alleles together (homozygous recessive). The recessive trait will be expressed, and the person's phenotype will be type O.

Genotype	AA or AO	BB or BO	AB	OO
Phenotype	A	B	AB	O



SUMMARY

Codominance is when two alleles express themselves instead of one dominating another. This can be seen with alleles for blood types. The alleles for blood types are an example of a multiple allele system. There are three possible **alleles for blood type**: A, B, and O. A and B are both dominant. AA or AO genotype will result in an A blood type, and BB or BO will result in a B blood type. However, when both A and B alleles are present, a person will have an AB blood type. O blood type will only occur when a person has two O alleles.

Keep up the learning and have a great day!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR AMANDA SODERLIND



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