

Multiple Alleles/Co-Dominant

1) Human blood type is determined by co-dominant alleles. There are three different alleles, known as I^A , I^B , and i . The I^A and I^B alleles are co-dominant, and the i allele is recessive.

The possible human phenotypes for blood group are type A, type B, type AB, and type O. Type A and B individuals can be either homozygous ($I^A I^A$ or $I^B I^B$, respectively), or heterozygous ($I^A i$ or $I^B i$, respectively).

A woman with type A blood and a man with type B blood could potentially have offspring with which of the following blood types?

A). type A B) type B C) type AB D) type O E) all of the above

Show work using Punnett squares

2) What are the possible blood types of the offspring of a cross between individuals that are type AB and type O? (Hint: blood type O is recessive) Show work!

3) Florence & Engelbert have two children: Kit and Kat. Kit's blood type is O, while Kat's is B. Florence is a little confused because her blood type is A. Engelbert, who is just plain ignorant about genetics, hires you to clear up the matter. List everyone's genotype.