

Human blood types are determined by genes that follow the CODOMINANCE pattern of inheritance, along with the usual complete dominance we've seen before. There are two dominant alleles ( $I^A$  and  $I^B$ ) and one recessive allele ( $i$ ).

Blood Type (Phenotype)	Genotype	Can donate blood to:	Can receive blood from:
O	$ii$	A,B,AB and O (universal donor)	O
AB	$I^A I^B$	AB	A,B,AB and O (universal receiver)
A	$I^A I^A$ or $I^A i$	AB, A	O,A
B	$I^B I^B$ or $I^B i$	AB,B	O,B

- Write the genotype for each person based on the description:
  - Homozygous for the "B" allele \_\_\_\_\_
  - Heterozygous for the "A" allele \_\_\_\_\_
  - Type O \_\_\_\_\_
  - Type "A" and had a type "O" parent \_\_\_\_\_
  - Type "AB" \_\_\_\_\_
  - Blood can be donated to anybody \_\_\_\_\_
  - Can only get blood from a type "O" donor \_\_\_\_\_
  - Genotype that shows blood types are codominant \_\_\_\_\_
  - 2 genotypes that show usual complete dominance \_\_\_\_\_ and \_\_\_\_\_
- Pretend that Brad Pitt is homozygous for the type B allele, and Angelina Jolie is type "O." **What are all the possible blood types of their baby?**
- Draw a Punnett square showing all the possible blood types for the offspring produced by a type "O" mother and an a Type "AB" father
- Mrs. Clink is type "A" and Mr. Clink is type "O." They have three children named Matthew, Mark, and Luke. Mark is type "O," Matthew is type "A," and Luke is type "AB." Based on this information:
  - Mr. Clink must have the genotype \_\_\_\_\_
  - Mrs. Clink must have the genotype \_\_\_\_\_ because \_\_\_\_\_ has blood type \_\_\_\_\_
  - Luke cannot be the child of these parents because neither parent has the allele \_\_\_\_\_.
- Two parents think their baby was switched at the hospital. Its 1968, so DNA fingerprinting technology does not exist yet. The mother has blood type "O," the father has blood type "AB," and the baby has blood type "B."
  - Mother's genotype: \_\_\_\_\_
  - Father's genotype: \_\_\_\_\_
  - Baby's genotype: \_\_\_\_\_ or \_\_\_\_\_
  - Punnett square showing all possible genotypes for children produced by this couple