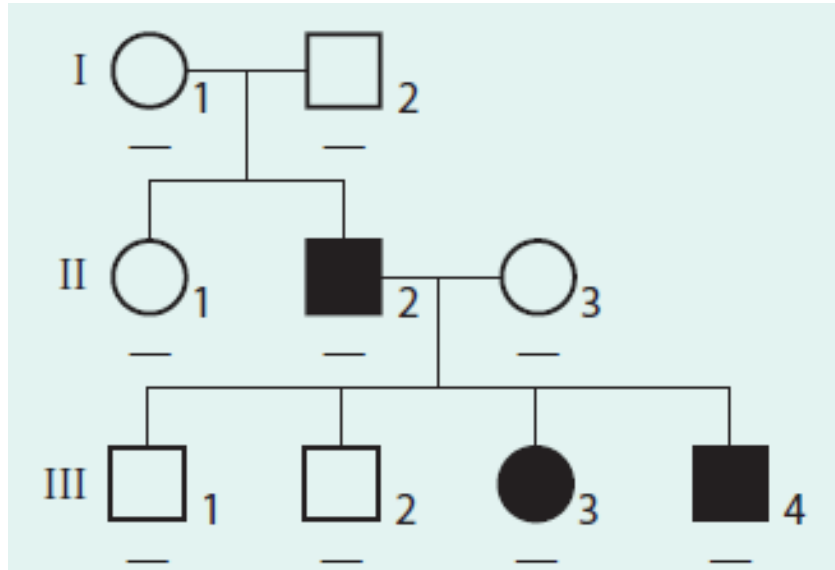


Analyzing how a trait is inherited within a family can help identify individuals who have the trait or carry an allele for the trait.

**Procedure**

Follow the strategy below for determining the genotypes of individuals in the pedigree, which shows the inheritance of cystic fibrosis, an autosomal recessive genetic disorder. Then apply it to the other pedigrees provided.

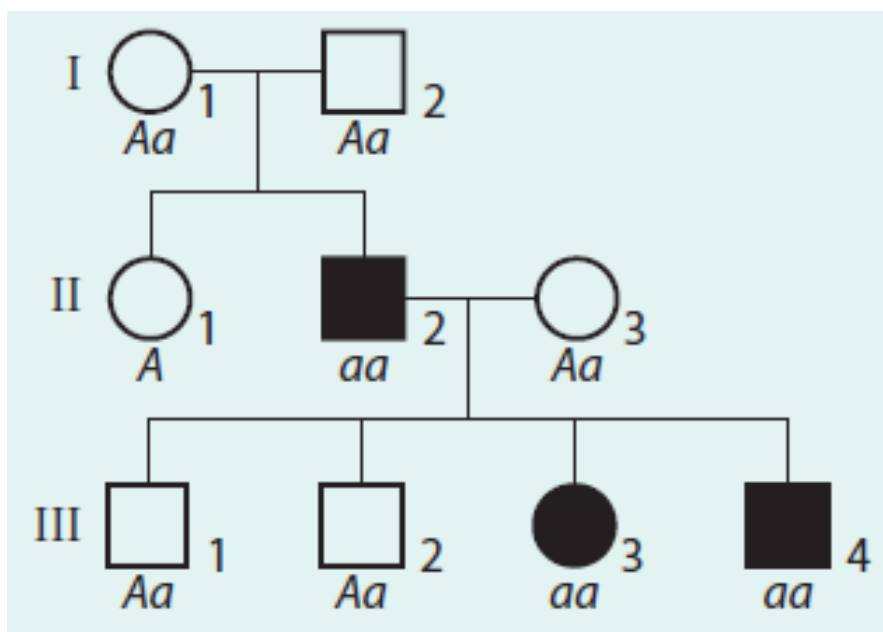


**Step 1** Look for an individual with a phenotype that differs from the corresponding phenotype in both parents. This phenotype must result from a homozygous recessive phenotype.

**Step 2** Write the symbol for the dominant allele below every individual who does not show the trait.

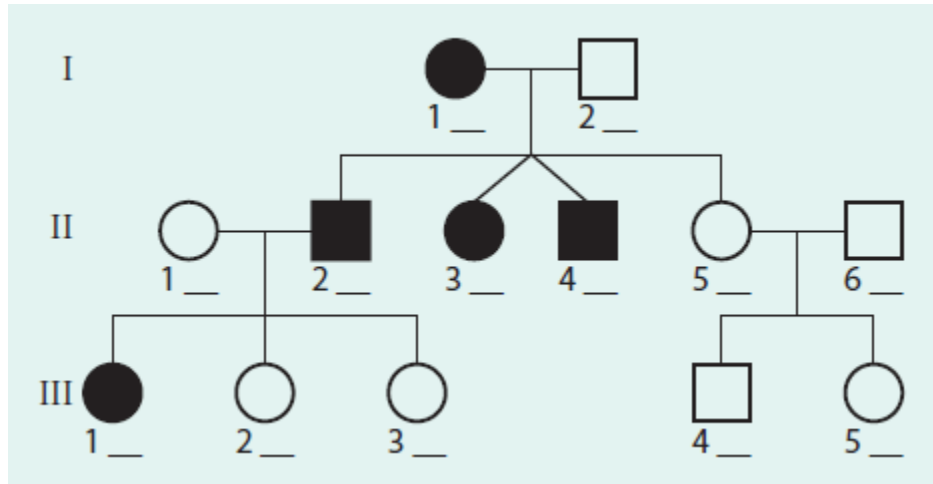
**Step 3** Both parents of the individuals showing the trait must have at least one recessive allele. All the children of a person showing the trait had to receive one recessive allele from this parent. Complete those genotypes.

The genotypes are shown below. Note that you cannot determine whether individual II 1 is heterozygous or homozygous dominant.

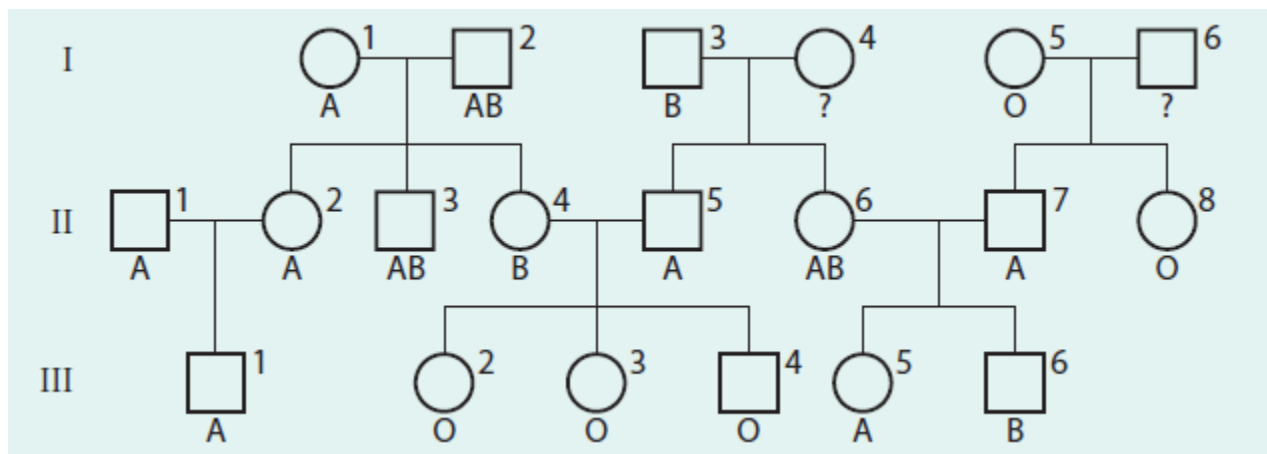


**Analysis**

- 1.) The ability to roll your tongue is controlled by a dominant allele. Identify the phenotypes and genotypes of all the people in the pedigree for this trait.



- 2.) In the pedigree below, different blood types are identified by the letters A, B, AB, and O.



- A) Neither individual I 4 or I 6 has ever had their blood tested. What are their blood types?

---

- B) Write the genotypes of as many individuals as you can. Whose genotypes can you not be sure of? Why?

---



---

- C) Individual III 3 marries a man with blood type AB, and they have four children. Will any of these children have blood type O? Why or why not?




---

- D) Individuals II 1 and II 2 have a second child. After you see the child's blood test results, you know that both parents have the genotype  $I^A i$ . What blood type is the child? Why?

---



---



---