**Heredity Survey**

**How Do We Inherit Our Biological Characteristics? Introduction**

Lucia and David Garcia want to have a child. Lucia is concerned, however, because she has a family history of cystic fibrosis. Cystic fibrosis is a genetic disease that causes a constant thick mucous in the respiratory system. This condition sets up severe respiratory infections. Cystic fibrosis also causes trouble in digesting some foods because the pancreas fails to produce the proper enzymes. Lucia worries about passing the disease to her child, even though she herself does not have it. Lucia and David decide to consult a genetic counselor to understand the risk of having a child with cystic fibrosis.

First, the counselor explains to Lucia and David that every baby develops from a single cell, the fertilized egg, which contains the information for the development of all human characteristics. This information is contained in the DNA of the 23 pairs of chromosomes (46 chromosomes in all, half from the father and half from the mother). Each chromosome contains hundreds of genes. The genes determine such features as the color of eyes, blood type, distribution of body hair, features of the skeleton, etc.

Next, the counselor explains that cystic fibrosis results from a defective gene. The gene is recessive, and so may be present in a perfectly healthy individual.

"Am I a carrier of the disease?" asks Lucia. "My aunt had it, I know that."

"About 1 in 25 people carries the gene for cystic fibrosis, usually without being aware of it," the counselor answers. "But only if both of you carry the defective gene, is it possible for your baby to have the disease. A person with cystic fibrosis must have inherited a pair of defective genes."

"So I can't have a baby with cystic fibrosis unless my husband is also a carrier?" asks Lucia. "That's right," said the counselor, "so I recommend that both of you be tested to see if the cystic fibrosis gene is present."

**Purpose**

In this lab, you will identify traits that you have inherited from your parents and analyze the way in which these traits have been passed through your family.

**Lab Objectives**

*When you've finished this lab, you will be able to:*

• Use observations of human traits to construct a family pedigree

• Use a pedigree to determine what future generations in your family might look like.

**Lab Skills**

*You will use these skills to complete this lab:*

• Organize data in a form that helps to answer a specific question.

• Interpret data presented in a table.