

## GENETIC RESEARCH

### Genetic Future

1. **Human genetic engineering. What will it be like in 2050?**
2. **Watch a sequence from the film Gattaca. What are your thoughts about our genetic future?** <http://www.pbs.org/wgbh/nova/genome/program.html> (13<sup>th</sup> DNA databases)

Would you want yourself or a loved one to be tested for a gene that increases your risk for a disease, but does not **determine** whether you will actually develop the disease?

Would you want yourself and your mate to be tested before having offspring to determine whether you were both carriers for a disease, in which case you are at high risk for having a child who contracts the disease?

Should testing of unborn children be restricted to traits that are commonly considered **deleterious**, such as disease genes?

Should altering a newly conceived person to improve normal qualities -- such as **innate** intelligence, appearance, strength, etcetera -- be allowed?

Should genes or other genomic material be patented?

Should employers have access to your genetic information?

Should life insurance companies have access to your genetic information?

<http://www.pbs.org/wgbh/nova/genome/survey.html>

### 3. Read the text "Medicine and Genetic Research" and complete the tasks.

<b>Medicine and Genetic Research</b>	
<p>In recent years, there has been an enormous increase in interest in and financial support for genetic research. As a result, a great deal of progress has been made in this important area of knowledge. For example, some years ago scientists successfully identified the genes for a number of serious birth defects and diseases that children can inherit from their parents. On the basis of this advance, medical science has developed tests that enable doctors to discover a variety of genetic abnormalities in unborn babies, abnormalities that are usually incurable and which often result in death.</p> <p>More recently, genetic researchers have begun to use their knowledge not just to diagnose but also to develop treatment for life-threatening genetic illnesses. For cases of diseases such as hemophilia, sickle-cell anemia, cystic fibrosis, and a number of immune-deficiency diseases, researchers are testing ways to introduce perfect genes into patients. Some of the early results of such experimental treatments have been very promising. In one study, a gene whose absence causes immune-deficiency has been introduced into the white blood cells of two young immune-deficient children.</p> <p>As a result, they are beginning to show the natural resistance to diseases and infection that humans normally have. In other research, medical scientists are studying the effectiveness of a natural human protein that can now be produced in large quantities in the laboratory, thanks to genetic engineering. The protein is being given to patients who suffer from cystic fibrosis, a genetic disease of the lungs that affects fifty thousand Americans and is often fatal by the age of thirty.</p> <p>Medical researchers are very excited about the possibility of using techniques of genetic engineering to treat conditions like cancer, diabetes, and heart disease.</p>	<p>However, they caution that such treatment is still years away. What is fully available today, thanks to genetic research, is the possibility of eliminating a number of incurable genetic diseases. We can begin to do this, health experts argue, by informing people who carry defective genes about the health risks for any children they might have. This practice is already quite common in the United States and in other industrial countries. After tests have shown that they carry a genetic disease, some people have decided not to have children. They don't want to take the risk that a child of theirs will suffer from an incurable mental or physical defect.</p> <p>However, progress in genetic research is also raising a number of important moral and ethical questions for the medical profession and for society in general. For example, we now have the ability to produce human growth hormone by genetic engineering. The hormone, of course, can be used to help people who are genetically lacking in it. But should it be made available to people who are merely dissatisfied with their size and wish to be taller? A more serious question is raised by our ability to identify defective genes in unborn children and our wish to eliminate some genetic diseases. If tests show that a baby will be born with some incurable disease or abnormality, should the parents have the right to ask for an abortion? Today in the United States and in many other countries, abortions are legal in such cases. However, many people, especially people with strong religious beliefs, disagree strongly with this practice. For them abortion is morally wrong. In their opinion, science must look for other ways than killing unborn babies to eliminate genetic diseases.</p> <p style="text-align: right;"><i>Pakenham, J. (1998), Making Connections, CUP</i></p>

## Reading Comprehension

### **Main idea check:**

**Choose the sentence that best expresses the main idea of the passage:**

- a. Progress in genetic research has given us the hope of treating or eliminating genetic disease, but it is also causing moral and ethical problems.
- b. Doctors can now identify people who perhaps will have children with genetic abnormalities.
- c. Today, although abortion is legal in the United States, many people are opposed to it.
- d. Medicine has benefited a great deal from the progress that has been made in genetic research in recent years.

### **A closer look:**

- 1. What are the names of some specific genetic diseases?**
- 2. At the time this article was written, how much progress had been made by research in the genetic treatment of diseases?**
  - a. Research had made such great progress that some treatments were already becoming widely available.
  - b. Research had been successful enough to give hope that genetic treatment would become available in the future.
  - c. Failures and disappointments in the research had caused serious doubt that genetic treatment would ever be worthwhile.
- 3. How do health experts suggest that we begin now to solve the problem of some genetic diseases?**
  - a. By encouraging people with certain defective genes not to have children.
  - b. By using technology to cure the diseases.
  - c. By performing surgery on children with genetic defects.
- 4. True or False?**

Doctors never inform adults who carry defective genes about the danger that they will have children with serious mental or physical abnormalities.
- 5. True or False?**

Everyone agrees that abortion should be available to women who are carrying unborn babies with incurable genetic diseases. True or False?

