

## The Promise of Gene Therapy

Gene therapy was first proposed in the early 1960s as a way to correct a multitude of genetic disorders. To what extent has that possibility developed into reality?

### Part I Learn about the successes and setbacks of gene therapy attempts.

Go to the Association of Gene Therapy Web site at: [www.asgt.org/history.shtml](http://www.asgt.org/history.shtml). Summarize the history of gene therapy for the following periods of time:

- 1960 to 1970
- 1980 to 1990
- 1990 to early 2000s

Give your opinion as to how well gene therapy attempts have met past expectations and whether or not these attempts hold promise for the future.

### Part II Take a position as to whether or not you support continued research and funding to accomplish gene therapy for a condition called Tourette's syndrome.

1. Go to the Tourette's syndrome information Web site at: [www.tourettes-disorder.com](http://www.tourettes-disorder.com).
2. In a few sentences, summarize the symptoms and the suspected causes of Tourette's.
3. Suppose you are serving on a funding committee that has only a certain amount of money available to award to gene therapy research. A research group is looking for a genetic fix for Tourette's syndrome, and they think they have identified at least one faulty gene that could be a target for gene therapy. They have asked for \$1.5 million dollars to fund 3 years of research and development of the new Tourette's syndrome gene therapy. With a total of \$10 million to award, your committee is considering this proposal as well as others from groups supporting research for cancer, multiple sclerosis, sickle cell disease, diabetes, and cystic fibrosis. Each of these groups is asking for \$2 to \$5 million. Decide if you believe the investment in Tourette's syndrome gene therapy is worthwhile to fund. Write a one-page summary of your position. You may consider the ethical issues presented at the US Department of Energy's Human Genome Project Web site at: [www.ornl.gov/sci/techresources/Human\\_Genome/medicine/genetherapy.shtml](http://www.ornl.gov/sci/techresources/Human_Genome/medicine/genetherapy.shtml). The site lists several questions to consider for using gene therapy, including the following:
  - What is normal and what is a disability or disorder, and who decides?
  - Are disabilities diseases? Do they need to be cured or prevented?
  - Does searching for a cure demean the lives of individuals presently affected by disabilities?
  - Somatic gene therapy is performed on adult cells of persons known to have a specific disease. Germline gene therapy is performed on egg and sperm cells. In which type of gene therapy could a trait be passed on to further generations? Is one type of gene therapy more ethical than the other?
  - Preliminary attempts at gene therapy are exorbitantly expensive. Who will have access to these therapies? Who will pay for their use?

Think about these questions before, during, and after you have formed your opinion on the funding of Tourette's syndrome research and gene therapy.