



# Heartland Science



Ohio's Legacy of Discovery & Innovation

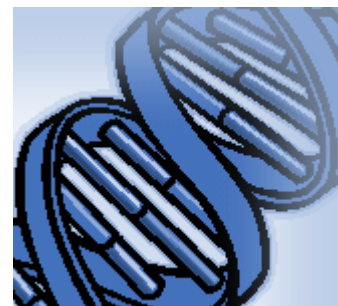


## Medicine, Health & Science

From the Heimlich Maneuver  
to the Speed of Light

### Genetic Engineering Landmark

The world's first functional gene transfer between mammalian species was performed in 1981 at Ohio University in Athens when researchers successfully produced rabbit genes in mice.



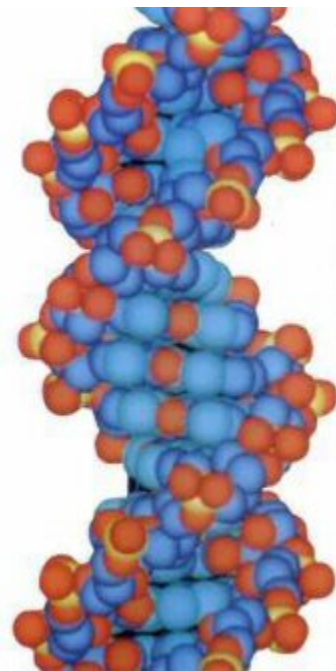
Genetics is a rapidly growing field. Strides in disease control have been achieved through international efforts such as the Human Genome Project. Over time, and with continued support of genetics research, more diseases will be understood, which will impact treatment, prevention, and the overall health of the life on earth.

### What is a Gene?

Genes are material entities that encode information essential for the construction and regulation of polypeptides, proteins and other molecules that determine the growth and functioning of the organism.

### What is Gene Transfer?

Gene transfer is achieved by inserting copies of a gene into living cells in order to synthesize the gene's product. The gene may be microinjected directly into the cell or into a virus via gene splicing. The virus is then allowed to infect a desired cell in order to integrate the new gene into the DNA of the infected cell.



### Did You Know?

- The National Human Genome Research Institute (NHGRI), a branch of the National Institutes of Health (NIH), announced the first draft of the dog genome sequence in a free public database for use by biomedical and veterinary researchers around the globe.
- In 1909, Wilhelm Johannsen coined the word "gene" to describe the Mendelian unit of heredity.
- In 1983, the first disease gene was mapped when a genetic marker for Huntington's disease was found on chromosome 4.

## Find out more...

- [National Human Genome Research Institute](http://www.genome.gov)  
(www.genome.gov)
- [National Human Genome Project Educational Resources](http://www.genome.gov/Education)  
(www.genome.gov/Education)
- [History of the Human Genome Project](http://www.ornl.gov/sci/techresources/Human_Genome/project/hgp.shtml)  
(www.ornl.gov/sci/techresources/Human\_Genome/project/hgp.shtml)
- [Genetic Timeline](http://www.genome.gov/Pages/Education/GeneticTimeline.pdf)  
(www.genome.gov/Pages/Education/GeneticTimeline.pdf)
- [Ohio University](http://www.ohio.edu)  
(www.ohio.edu)