



# Human Genome Project

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## What is a genome? And why is it important?

- A genome is all the DNA in an organism, including its genes. Genes carry information for making all the proteins required by all organisms. These proteins determine how an organism looks, how well it metabolizes food or fights infection, and how I behaves at times.

## What is the Human Genome Project ?

- Originally a 15 year project cosponsored by the Department of Energy (DOE) and the National Institutes of Health (NIH), it was started in 1990 in an effort to find 100,000 or more human genes and determine the sequence of the 3-billion DNA base pairs. With the help of technology, the goal for completion is now in 2003, two years earlier than originally accepted. This will coincide with the 50th anniversary of Watson and Crick's description of the fundamental structure of DNA.

## What are the goals of the Human Genome Project (HGP) ?

- to identify all the approximate 100,000 genes in human DNA
- to determine the sequence of 3 billion chemical bases that makeup human DNA
- to develop tolls for data analysis
- to address the ethical, legal, and social issues (a revolutionary idea also known as ELSI)

## What are some of the ethical, legal and social issues surrounding this project?

- fairness in the use of genetic information by insurers, employers, adoption agencies, law enforcement...etc.
- use of genetic information affecting decisions made about reproduction
- affects on the individual and societies perspective of the individual
- psychological impact due to genetic differences
- privacy and confidentiality of genetic information

## What are some benefits associated with this project?

In Molecular medicine:

- Improved diagnosis of disease
- Gene therapy and control systems for drugs
- Pharmacogenomics "custom drugs"

In Microbial Genomics:

- New energy sources
- Protection from biological/chemical warfare

In Agriculture:

- Disease, insect and drought resistant crops
- Healthier animals
- Edible vaccines incorporated in foods