

human genome project

new horizons in medicine

Understanding the human genome can be seen as the key to understanding the mystery of human life itself. The Human Genome Project set out to identify all of the genes in the human chromosomes (around 30,000 of them) and to sequence the billions of base pairs which make up human DNA. As a result of advances in the technology used to sequence DNA, the task of producing the complete human genome was completed two years ahead of schedule!

International involvement

The Human Genome Project has been an example of successful international cooperation, with scientists in 18 countries all working on sequencing the DNA.



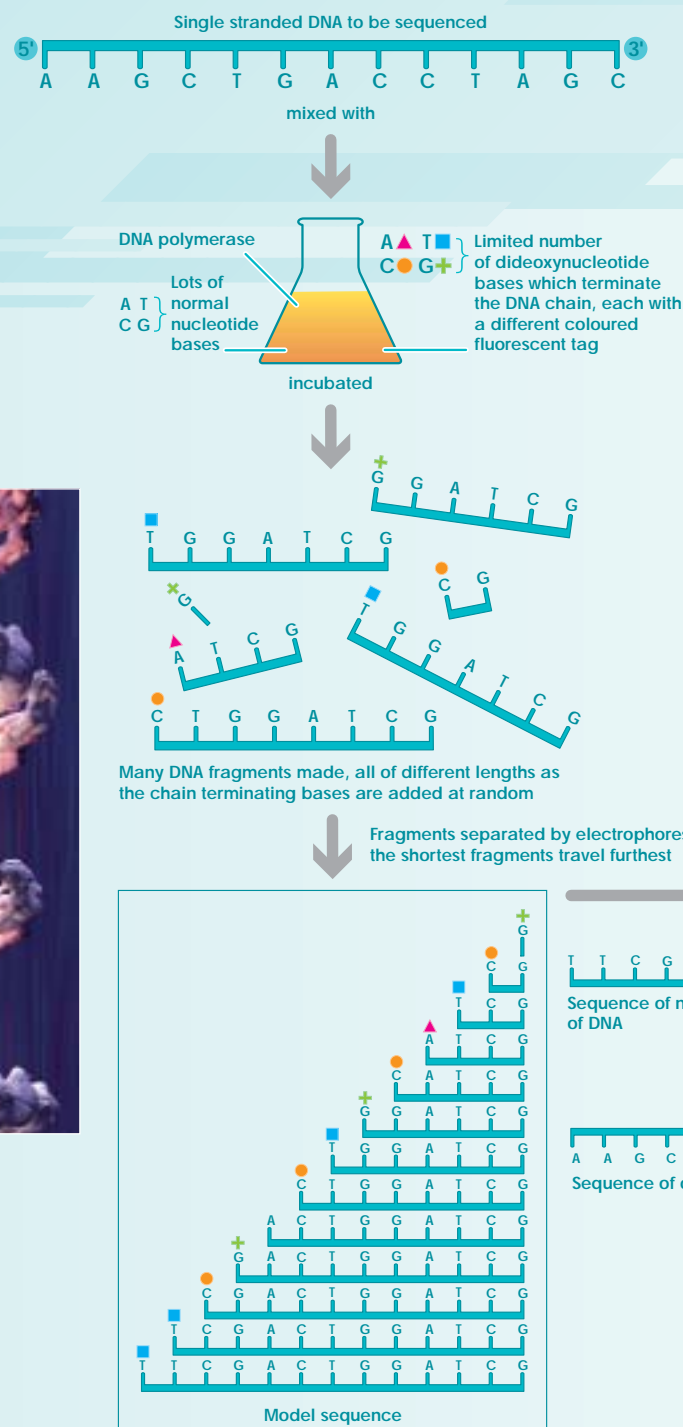
Human DNA by Michael Dunning. Image from the Novartis and The Daily Telegraph. Winner of Science Photograph Awards. www.visionsofscience.co.uk

The naked gene

This is what the human genome looks like – these letters represent a fragment of gene THC1256444 which codes for an insulin-like molecule. Each letter is equivalent to one nucleotide base and there are about **3 BILLION** of them in the human genome.



Sequencing the DNA



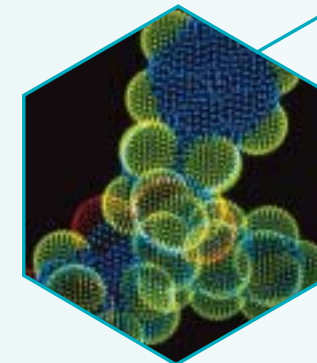
Diagnostic testing

Tests using gene probes are being developed to diagnose inherited diseases. As it becomes possible to identify the genes making people susceptible to problems like heart disease or cancer, in the future everyone may be able to plan a lifestyle to suit their genes.



Right drug, right place

Some of the new treatments developed using knowledge from the Human Genome Project hit precise targets in the body, such as cancer cells. Others work best in people with a particular genetic makeup. In future, medicines may even switch genes on or off to control disease.



Gene therapy

In gene therapy the idea is to overcome genetic diseases by modifying the faulty DNA which causes diseases such as thalassemia and cystic fibrosis. Results from the Human Genome Project should help scientists make progress in this exciting new area of treatments.

