



The Royal College of **Pathologists**

Pathology: the science behind the cure

Object 40: Human genome

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AATATGCTTGAATACCCGTAATTCGTAAAGGGGTT
TTGAATATGGTTCATTGTAAACCCGGTAAAAGGCC
CATTGTAATATATGGTTCATTAACGAATTGCTAGTA
GGTTAATTATGCTTGAATACCTTACCAACCGTGG
AATGGTTTTATTGTAACCCCTTGTAACCCGTAA
AAGGAAGGGGTTTTATTGTAACCTGAATAACG
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What is it?

The human genome is a complete list of the three billion base pairs that make up our genetic information. The pairs of bases make up long strings of DNA that are arranged in twenty three pairs of chromosomes. Lengths of DNA that code for proteins are called 'genes'. There are approximately 25,000 genes in the human genome.

History

In 1990 the Human Genome Project was set up by the US Department of Energy and the National Institutes of Health. Its goal was to sequence the entire human genome. This was originally expected to take 15 years but it was completed in 2003. Part of the project was to consider the ethical, legal and social implications of the project. Scientists from around the world collaborated on the project and competed against each other – this competition was partly responsible for the speed with which the project was completed.

Pathology

An understanding of the human genome has opened up research into the cause of diseases including inherited conditions and cancer. It is hoped that the research will result in ways to treat and even prevent genetic conditions.

Find out more

Find out more about the Human Genome on the [National Human Genome Research institute website](#).