

GENETIC ENGINEERING

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Genetic engineering is the alteration of genetic code by artificial means, and is therefore different from traditional selective breeding.

Genetic engineering examples include taking the gene of poison out of the tail of a scorpion, and combining it with a cabbage. These genetically modified cabbages kill caterpillars because they have learned to grow scorpion poison in their sap. Genetic engineering also includes insertion of human genes into sheep so that they secrete alpha-1 antitrypsin in their milk - a useful substance in treating some cases of lung disease. Genetic engineering has created a chicken with four legs and no wings. Genetic engineering has created a goat with spider genes that creates "silk" in its milk. Genetic engineering works because there is one language of life: human genes work in bacteria, monkey genes work in mice and earthworms. Tree genes work in bananas and frog genes work in rice. There is no limit in theory to the potential of genetic engineering. Genetic engineering has given us the power to alter the very basis of life on earth.

Genetic engineering has been said to be no different than ancient breeding methods but this is untrue. For a start, breeding or cross-breeding, or in-breeding (for example to make pedigree dogs) all work by using the same species. In contrast genetic engineering allows us to combine fish, mouse, human and insect genes in the same person or animal. Genetic engineering therefore has few limits - except our imagination, and our moral or ethical code. Genetic engineering makes the whole digital revolution. Digital technology changes what we do. Genetic engineering has the power of changing human beings too.

In summary I'd like to say that genetic engineering will alter the basis of life the on earth - permanently - unless controlled. This could happen if - say - mutant viruses, or bacteria, or fish or reptiles are released into the general environment. But it can give us a great future, with great contributions. Everything depends on the ways we use it.