



What is gene technology?



Gene technology (also known as genetic engineering or genetic modification) provides ways to make changes to genes – the sets of instructions in the cells of all living creatures. There is a large amount of overlap between ‘gene technology’ and the newer term ‘synthetic biology’.

Traditional biotechnology has been practised for centuries. We’ve used conventional breeding to create new crops, new breeds of livestock and pets. We’ve harnessed yeast to make beer and bread, and rennet to make cheese.

Gene technology is a modern branch of biotechnology that allows direct modification or removal of a gene, or the transfer of a gene from one species to another.

When plants, animals and other organisms are changed using gene technology they are known as genetically modified organisms (GMOs). If the modification includes the introduction of a gene from another organism, then these are known as transgenic. For example, GM cotton often contains a gene from bacteria that produces an insecticide, reducing the need for crop spraying to control insect pests.

When gene technology is used to create a GMO the use of that organism is regulated by the Gene Technology Regulator to protect people and the environment.

Uses for GMOs

Research

Using genetically modified bacteria, plants, animals and other organisms to better understand life processes.

Agriculture

Modifying crops – to introduce resistance to pests or diseases, incorporating herbicide tolerance, increasing resistance to drought, or improving the nutritional value of a crop.

Therapeutic goods

Modifying microorganisms to produce vaccines or medicines such as insulin.

Medicine

Developing new ways to diagnose and treat disease.

Veterinary medicine

Producing animal medicines and vaccines.

Industry

Producing enzymes to use in food processing, producing paper pulp or biological leaching of minerals.

Bioremediation

Using microorganisms to decompose toxic substances and clean-up industrial sites or environmental accidents

Related factsheets:

[Who needs to apply to import or use \(deal with\) a GMO?](#)

[Public participation in assessing gene technology](#)

Factsheets for further reading

[Genetically modified organisms in Australia](#)

[Genetically modified \(GM\) crops in Australia](#)

[How are genetically modified organisms \(GMOs\) regulated in Australia?](#)

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