Genetics

Genetics is a rapidly changing field of scientific development, which can often be controversial. Three often debated techniques include:

- artificial selection (selective breeding);
- genetic engineering (also called genetic modification or GM);
- genetic cloning.

Artificial Selection

Also known as **selective breeding**, this process involves breeding animals and plants for particular characteristics.



However, selective breeding can sometimes result in **genetic defects**. For example, Pug dogs (a breed with a flat nose) can suffer from breathing problems. About 30% of Dalmatians are affected by deafness.



Genetic Engineering

This process is also known as genetic modification (GM). It involves manipulating **DNA** in an **organism** to add or remove different characteristics.

GM crops have been developed to produce diseaseresistant varieties.

Gene therapy is the genetic engineering of humans to treat inherited diseases. It is a controversial topic; some people are concerned that the technology could be used to modify a person's appearance or intelligence.

Genetic Cloning

Genetic cloning is a process that produces **exact copies** of a particular gene or whole organism.

The first genetically-cloned mammal, a sheep named Dolly, was born in 1996 and became world-famous.

Cloning can help scientific studies and the development of medical treatments. However, some people are concerned about the **ethics** of cloning.



