

Cloning **Biology only**

What is micropropagation?

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What is an explant?

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Why is aseptic technique needed in micropropagation?

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Why are micropropagated plants genetically identical?

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State two uses of micropropagation.

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What is an enucleated egg cell?

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What type of nucleus is used to clone a mammal?

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Outline how Dolly the sheep was cloned.

A small piece of plant tissue taken from the parent plant to be grown in vitro.

Growing new plants from small pieces of tissue (explants) in vitro, in sterile conditions on nutrient medium.

They grow from cells of one parent by mitosis, so they are clones.

To stop bacteria and fungi contaminating the culture.

An egg cell that has had its nucleus removed.

Any two: commercial quantities of plants with desirable characteristics, saving rare plants, producing plants all year round.

A diploid nucleus from a mature cell was put into an enucleated egg, which formed an embryo implanted into a surrogate.

A diploid nucleus from a mature body cell.

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What is a cloned transgenic animal?

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**Name a human protein made by
cloned transgenic animals.**

Alpha-1-antitrypsin or a blood clotting factor, often made in milk.

A cloned animal that contains a gene from another species, such as a human gene.