

ARTIFICIAL TWINS



What is cloning?

Cloning involves a number of processes with the goal of identically reproducing genes or the entire organism. If we think about cloning what comes to our minds is artificial cloning, but we have to know that it happens also in nature such as with plants' roots, bacteria and some people believe that homozygote twins are clones too.

Why do we clone?

The main reason to clone plants or animals is to produce organisms with desired qualities, such as a particular type of orchid or a genetically engineered animal. If you had to rely on sexual reproduction then you would run the risk of breeding out the desired traits because sexual reproduction reshuffles the genetic deck of cards.

Other reasons for cloning might include either curing damaged tissues of human body or replacing lost family pets and repopulating endangered or even extinct species.

How does it work? (With animals)

- A cell (called the donor cell) is taken from an organism
- An egg cell is emptied out
- The taken somatic cell is injected in the empty egg cell
- It evolves into an early embryo stage

- It's implanted in the womb of a female animal (not the donor)

- The female gives birth to a child referred as the clone. It has the same DNA as the donor.

Dolly the most famous sheep in the history

Dolly was the first cloned lifeform in the world. She was cloned by Ian Wilmut, Keith Campbell and colleagues at the Rosline Institute. She was born during 5th July 1996 in Edinburgh. The sheep had three different mothers. Sheep A provided the egg, sheep B the DNA and sheep C carried the cloned embryo and birth it. So Dolly was the clone of sheep B. She lived in



Edinburgh and had six lambs. The first lamb was born in April 1998. The cloned sheep died on 14th February 2003, after a lung cancer, which not depend on the cloning. She died with 6 and a half years. The message that Dolly is a successful cloned sheep amazed the whole world because nobody thought that it ever could happen but it doesn't take much time till the first debate about the ethical problems started. Should we clone humans? For the scientist it was the next step in the medicine because clones could be the key for fighting against illness.

Humans cloning

People have always been attracted of cloning themselves, but it seems more difficult and dangerous than with the animals. Although some scientists claim that they have cloned humans, it appears

to be fiction. Nowadays there aren't any evidence that someone has done it indeed.

Therapeutic cloning – embryo cloning

The purpose of this process is not to create cloned human beings, but rather to harvest stem cells that can be used to study human development and to treat diseases. The goal of researcher is to use embryonic stem cells, which have the unique ability to generate virtually all types of specialized cells in an organism, to grow healthy tissues in the lab that can be used to replace injured or sick tissues in the human body and to treat heart disease, Alzheimer's, cancer...

To sum up this technique would overcome the organ transplants from other people because with this method you can take stem cells from your own organism (blood marrow) and thus there wouldn't be any danger of organ rejection.

Ethical problems with cloning

Humanity has already cloned animals like Dolly the sheep but the question remains if we should start cloning humans.

Clones would be a physical identical copy of your body but your personality is forged from all the experiences and things that happened in your life so far so we can't know if the clone would have the same personality as his donor. If the clone would have the same personality as his donor has than the individuality and diversity would stop existing and these two things are needed for a life with different experiences in social interactions with different people.

Some say that evolution of the human race would stop because if the same generation is cloned over and over again the same

people will remain on the planet and improvements would stop.

Also you shouldn't forget the aspect of safety for the clones.

Before Dolly the sheep was successfully cloned, hundreds of embryos died and Dolly lived for six years only (this is about half of the lifespan of a normal sheep). If we start cloning humans it will also take hundreds or thousands of attempts before a clone finally lives and we can't predict how long it will take till the human clone dies.

-Then there is the religious aspect.

There was a debate for many years when human life actually starts and some say it begins in the embryonic state. So if humanity starts cloning and take the nucleus from an egg cell then there won't be an embryo and we would destroy a human life.

Different religions have different problems with cloning for example in Buddhism they think that every life is part of the nature and cloning would be against nature.

-What is the purpose of the clones?

Some people could think that cloning gives them the ability of eternal life if they clone themselves over and over again or use the clones as spare part depot. Or some people who want to make a lot of money could sell clones for slavery or to build an army.

It is clear that cloning will be a part of our lives in the future but the course of this technology has yet to be determined.

Sources:

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