

Answer on Question #76387, Biology / Zoology

How artificial cloning is helpful for humans?

Solution:

In nature clones (genetically identical organisms) are found everywhere. They arise in the vegetative multiplication of plants, in the division of many unicellular ones, in the budding of yeast or multicellular organisms - hydra. Identical twins are also clones of each other: they arose as a result of the division of a fertilized egg into two independent embryos.

With artificial cloning, nuclei from adult cells are used. To date, it has been possible to successfully clone carp, rat, mouse, sheep, bull, mule, horse, dog. Cloning mule is interesting because this hybrid donkey and horse can't reproduce themselves and cloning is the only way to preserve a successful organism.

Basically, cloning uses a process known as somatic cell nucleus transplantation, which involves removing the oocyte from which the nucleus has been removed, and replacing that core with another body's DNA. After many mitotic divisions of culture (mitosis culture), this cell forms a blastocyst (the early stage of the embryo consisting of approximately 100 cells) with DNA almost identical to the primary organism.

When cloning a person from a practical point of view, there are two goals.

The first is cloning to generate offspring. Especially acute problems of reproductive cloning affect the infertile people, as well as people of non-standard sexual orientation who can't or don't want to have children in the traditional way.

The second goal is therapeutic cloning, the production of embryonic stem cells, for the treatment of diseases. Nascent cells (human stem cells) can be grown to produce human organs or tissues. This can be used to regenerate or replace damaged organs. The combination of human stem cells and cloning technologies can be used to reproduce tissues for suffering people who have alien tissues and are rejected by their immune system. Instead of using materials from foreign bodies, it is possible to grow cells of bones, tissues that correspond to the person undergoing treatment. Victims of terrible accidents with deformed persons can hope to have their functions restored using safe technology. Breast implants, dentures and many other things will simply not be needed, since the materials of human cloning technology will not differ from their normal tissues.