Ad Hoc Committee

Zenith Model United Nations 2014

BACKGROUND GUIDE

Agenda: Banning of Reproductive Cloning of Human Beings

Introduction

Human cloning is defined as the creation of human embryos having the same genetic make-up as another human being, dead or alive, at any stage of its development from the moment of fertilization, without any possible distinction as regards the method used. [European Parliament, Resolution on human cloning, of 15 January 1998 (1998 O.J.(C 34) 164 (15 January 1998))] There are two types of cloning: therapeutic and reproductive.

Reproductive cloning is the creation of a specimen, by copying the nuclear DNA of another currently, or previously existing animal or human being. Therapeutic cloning is the transfer of nuclear material isolated from a somatic cell into a nucleated oocyte in the goal of deriving embryonic cell lines with the same genome as the nuclear donor. It uses cloned cells for purposes of research and medical treatment. While therapeutic cloning has found backing, because of its use in tissue and organ replacement and also for potentially finding ways to treat various diseases such as Parkinson's, Alzheimer's, diabetes etc- the prospect of reproductive cloning has largely been controversial. The major arguments against reproductive cloning are ethical in nature. For instance, it has been argued that reproductive cloning shall destroy the concept of individuality, and that it is a practice contrary to human dignity [Article 11, Universal Declaration on the Human Genome and Human Rights].

History of Cloning

In biology, cloning is the process of producing similar populations of genetically identical individuals that occurs in nature when organisms such as bacteria, insects or plants reproduce asexually. Cloning in biotechnology refers to processes used to create copies of DNA fragments (molecular cloning), cells (cell cloning), or organisms. The term clone is derived from the Ancient Greek word κλών (klōn, "twig"), referring to the process whereby a new plant can be created from a twig.
Molecular cloning refers to the process of making multiple molecules. Cloning is commonly used to amplify DNA fragments containing whole genes, but it can also be used to amplify any DNA sequence such as promoters, non-coding sequences and randomly fragmented DNA. It is used in a wide array of biological experiments and practical applications ranging from genetic fingerprinting to large scale protein production. Cloning of any DNA fragment essentially involves four steps
a. fragmentation - breaking apart a strand of DNA
b. ligation - gluing together pieces of DNA in a desired sequence
c. transfection - inserting the newly formed pieces of DNA into cells
d. screening/selection - selecting out the cells that were successfully transfected with the new DNA
Hans Spemann, a German embryologist was awarded a Nobel Prize in Physiology or Medicine in 1935 for his discovery of the effect now known as embryonic induction, exercised by various parts of the embryo, that directs the development of groups of cells into particular tissues and organs. In 1928 he and his student, Hilde Mangold, were the first to perform somatic-cell nuclear transfer using amphibian embryos – one of the first moves towards cloning.

Dolly the Sheep - Dolly, a Finn-Dorset ewe, was the first mammal to have been successfully cloned from an adult cell. Dolly was formed by taking a cell from the udder of her biological mother. Her biological mother was 6 years old when the cells were taken from her udder. Dolly's embryo was created by taking the cell and inserting it into a sheep ovum. It took 434 attempts before an embryo was successful. The embryo was then placed inside a female sheep that went through a normal pregnancy. Dolly was publicly significant because the effort showed that genetic material from a specific adult cell, programmed to express only a distinct subset of its genes, can be reprogrammed to grow an entirely new organism.

Some issues have developed with reproductive cloning from a scientific perspective. Clones appear to have shorter lifespans, leading to concerns about the disadvantages of reproductive cloning. There is also the risk of losing genetic diversity as a result of using cloning, especially in the agricultural industry, where the temptation to use standardized animals is understandably tempting. Like any new scientific development, reproductive cloning was heavily challenged in the scientific community when it first emerged, especially after scandals in which scientists claimed to have cloned animals but actually hadn't.
Ethically, reproductive cloning brings up some interesting issues. Some people believe that life begins at conception, and they feel that reproductive cloning is unnatural and that it could potentially violate their religious beliefs. Others are simply perturbed by the idea of being able to clone copies of living organisms, and they wonder about the risks of using cloned animals in the food supply. Psychologists and other people who study development are intrigued by the potential to use reproductive cloning as a test of the famous nature versus nurture debate.
Somatic cell nuclear transfer can also be used to create stem cell lines for therapeutic cloning, a type of cloning which is performed for medical purposes, rather than with the goal of creating a copy of another organism. It is also possible to manipulate the genetic material used in reproductive cloning using recombinant DNA technology to alter DNA.
Several nations have passed resolutions to explicitly ban human cloning, out of concern about ethical issues. Others are willing to explore the potentials of reproductive cloning, but would prefer to see closely monitored and peer reviewed experiments which address some of the concerns about cloning.

Arguments for and against Cloning:

Cloning is a form of asexual reproduction. A child produced by cloning would be the genetic duplicate of an existing person. If you cloned yourself, the resulting child would be neither your son or daughter nor your twin brother or sister, but a new category of human being: your clone.

The great majority of people have an intuitive sense that human beings should not be cloned. Arguments offered for and against reproductive cloning are given below. A summary comment follows at the end of the arguments.

Arguments Against Reproductive Cloning

1. Reproductive cloning would foster an understanding of children, and of people in general, as objects that can be designed and manufactured to possess specific characteristics.

2. Reproductive cloning would diminish the sense of uniqueness of an individual. It would violate deeply and widely held convictions concerning human individuality and freedom, and could lead to a devaluation of clones in comparison with non-clones.

3. Cloned children would unavoidably be raised "in the shadow" of their nuclear donor, in a way that would strongly tend to constrain individual psychological and social development.

4. Reproductive cloning is inherently unsafe. At least 95% of mammalian cloning experiments have resulted in failures in the form of miscarriages, stillbirths, and life-threatening anomalies; some experts believe no clones are fully healthy. The technique could not be developed in humans without putting the physical safety of the clones and the women who bear them at grave risk.

5. If reproductive cloning is permitted to happen and becomes accepted, it is difficult to see how any other dangerous applications of genetic engineering technology could be proscribed.

Rebuttals to Arguments Against Reproductive Cloning:

1 and 2. This will be true only if we allow it to be true. There is no reason that individuals and society can't learn to embrace human clones as just one more element of human diversity and creativity.

3. The problem of "expectations" is hardly unique to cloned children. Most parents learn to communicate their expectations about their children in a moderate and ultimately positive way.

4. Every medical technology carries with it a degree of risk. Cloning techniques will eventually be perfected in mammals and will then be suitable for human trials.

5. Human society can accept or reject any proposed technology on its own merits.

Arguments in Favor of Reproductive Cloning:

1. Reproductive cloning can provide genetically related children for people who cannot be helped by other fertility treatments (i.e., who do not produce eggs or sperm).

2. Reproductive cloning would allow lesbians to have a child without having to use donor sperm, and gay men to have a child that does not have genes derived from an egg donor (though, of course, a surrogate would have to carry the pregnancy).

3. Reproductive cloning could allow parents of a child who has died to seek redress for their loss.

4. Cloning is a reproductive right, and should be allowed once it is judged to be no less safe than natural reproduction.

Rebuttals to Arguments in favour of Reproductive Cloning:

1. The number of men and women who do not produce eggs or sperm is very small and has been greatly reduced further by modern assisted-reproduction techniques. If cloning could be perfected and used for this limited group – it would be impossible to prevent its use from spreading. This argument appropriates the phrase "genetically related' to embrace a condition that has never before occurred in human history, one which abolishes the genetic variation that has always existed between a parent and a child.
2. Even if cloning was safe, it would be impossible to allow cloning for gay men and lesbian women without making it generally available to all. Policy and social changes which protect lesbians and gays are a much more pressing need.
3. Throughout history parents who have lost children have grieved and sought consolation from family and communities. "Replacing" the deceased child degrades and dehumanizes the child and all of us.
4. Rights are socially negotiated and no right to clone oneself has ever been established. Further, there is an immense difference between a woman's desire to terminate an unwanted pregnancy and the desire to create a genetic duplicate of another person. Supporting the former and opposing the latter are inconsistent.

QUESTIONS TO CONSIDER:

1. **Cloning techniques and Technological advancement**
2. **Countries and Noted Scientists currently involved in reproductive cloning**
3. **Difference between therapeutic and reproductive cloning**
4. **National legislation on laboratory (artificial) reproduction**
5. **International regulations and norms on cloning**
6. **Ethics of cloning**
7. **Possibility of mass cloning in the future**
8. **Ramifications and dangers with respect to security concerns**

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MIRANDA HOUSE