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Human Cloning

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The advent of human cloning technology—or somatic cell nuclear transfer (SNT)—has thrust policymakers into the scientific world of genetics research. The debate over ethical and legal issues surrounding the use of cloning for reproductive purposes has led to accompanying public discussion of stem cell research. While this discourse has alerted Americans of the growing role of genetics in health care, it also—not surprisingly—has generated much confusion. Policymakers can help to guide the learning process and ensure the formulation of sound public policy for cloning technology with an understanding of the potential uses, benefits and risks of reproductive and therapeutic cloning.

Reproductive Cloning

As researchers gain experience with the use of SNT, reproductive cloning, or the cloning of a human embryo for the purpose of initiating a pregnancy, may someday become a reality. SNT involves the removal of the nucleus from an adult's somatic cell—or any cell in the human body other than sperm cells in men and egg cells in women. The nucleus taken from the somatic cell then is transferred to a woman's egg cell, from which the nucleus has been removed. Through proper stimulation, the egg cell develops into an embryo, which doctors then can implant into a woman's uterus. If the procedure leads to a live birth, the resulting human being inherits one person's genetic material, that of the individual from which the somatic cell was taken.

Some observers object to the implantation of cloned embryos based on ethical or safety concerns. For instance, while researchers have produced numerous animal clones since the first in 1997, "Dolly" the sheep, many animal clones have suffered from genetic and other abnormalities for reasons not yet understood. Others object to the use of SNT for reproductive purposes because they say that it allows scientists to play God. In addition, human cloning may do psychological damage if parents impose unrealistic expectations on offspring to mirror a parent's genetic make-up and personality. A small number of scientists contend that human cloning, in fact, offers a valuable tool for infertile individuals who want biological offspring.

Therapeutic Cloning

Therapeutic cloning—which involves the creation of embryos through SNT for research in disease treatment or prevention—can be easily distinguished from reproductive cloning to initiate a pregnancy by identifying the intended use of the embryos. Therapeutic cloning provides access to large numbers of embryos for the purpose of stem cell research—an attractive option for scientists given that embryos are a rich source of stem cells. The creation of embryos for stem cell research, however, raises ethical concerns for some individuals who object to the destruction of embryos. Others note that stem cell research offers hope to people who suffer from disorders like Parkinson disease for which the potential benefits of stem cell research are thought to be substantial.

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Federal Action

A federal bill to ban human cloning passed the House of Representatives in August 2001 but has not seen any action since that time. Several bills to ban either reproductive cloning, therapeutic cloning or both were subsequently introduced, but none of these bills has passed either chamber at the time of publication of this brief. In the midst of the federal debate, a panel formed by the National Academy of Sciences released its recommendation to prohibit reproductive cloning but permit therapeutic cloning.

In addition, President Bush approved limited use of federal funds for stem cell research using existing stem cell lines in August 2001. The president decided to uphold the ban on the use of federal funds in research that involves the destruction or creation of embryos, but private institutions can continue research in this area within the bounds of state laws. The president also stated that he would continue to examine the issue of embryonic research through the Presidential Bioethics Council.

State Action

Seven states have laws pertaining to the use of human cloning. California first addressed the issue with a ban on human cloning in 1997; since then, four other states—Louisiana, Michigan, Rhode Island and most recently Virginia—have enacted measures to prohibit human cloning. In addition to prohibiting the creation of human embryos for the purpose of initiating a pregnancy, Iowa and Michigan extend their restrictions with a ban on the creation of human embryos via cloning techniques regardless of the intended use. Finally, Missouri forbids the use of public funds for human cloning research.

State	Prohibits Cloning Embryos to Initiate Pregnancy	Prohibits Cloning Embryos For any Purpose	Expiration
California	v		January 1, 2003
Iowa	v	v	
Louisiana	v		July 1, 2003
Michigan	v	v	
Missouri	v with the use of state funds		
Rhode Island	v		July 7, 2003
Virginia	v		

Twenty-seven states also enforce various laws that govern embryonic and fetal research. While many of these laws are decades old, they may impact the application of cloning techniques for reproductive and therapeutic purposes. For example, nine states prohibit research on fetuses, embryos or both. In three states laws have been judged unconstitutional based on vague language.

In 2002, state legislators introduced 38 bills to address human cloning. This suggests that most policymakers

have or will face the option to ban embryonic cloning in some or all instances, or merely prohibit the use of government funds in certain areas of research. In placing limits on scientific research, legislators may want to balance the importance of ethical concerns with the promise that experimentation offers for the development of new strategies to fight disease.

Selected References

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