U.S. CONGRESS

Would Cloning Ban Affect Stem Cells?

Prospects for research on "therapeutic" cloning dimmed substantially last week as the House of Representatives resoundingly passed a measure that would outlaw all human cloning, whether or not it was designed to produce a baby. Now it looks like the Senate may follow suit, thus robbing scientists of a chance to pursue a technology that some believe is vital to realize the promise of embryonic stem (ES) cell research but that others regard as too hypothetical to worry about right now.

Almost everyone is opposed to producing human babies via cloning. The House bill, sponsored by Dave Weldon (R–FL), stipulates a $1 million fine or up to 10 years in jail for anyone who produces or traffics in "an embryo produced by human cloning." This ban would prevent any scientist from trying therapeutic cloning, in which an embryo is created solely for research through a process called somatic cell nuclear transfer. In this process, genetic material from a body cell is inserted into an enucleated egg cell. Scientists say ES cells derived from patients' own DNA would provide them with a source of genetically matched tissues and avoid immune rejection. James Greenwood (R–PA) and Peter Deutsch (D–FL) proposed an amendment to the Weldon bill that would have allowed such research, but it was defeated 251–176.

Several scientists say a ban on therapeutic cloning would deliver a major blow to research on ES cells, which have the potential to develop into any cell type and thus might be used to treat diseases such as Parkinson's and diabetes. At a press conference before the House vote, Jordan Cohen, head of the Association of American Medical Colleges, warned that a sweeping cloning ban "would have grave implications for future advances in medical research and human healing." The procedure affords "the only way to make immunologically acceptable tissue" from ES cells, said Rudolf Jaenisch, a biologist at the Massachusetts Institute of Technology. Michael West, head of Advanced Cell Technology in Worcester, Massachusetts, says a ban "could set back critical research many years." The company has already announced plans to attempt to clone human embryos for ES cell research.

Other scientists say the technology is so untried, and there are so many other research lines to pursue, that a ban would not seriously wound the stem cell research endeavor, at least not for now. "Therapeutic cloning is not at the heart of the stem cell issue," says Steven Goldman of Cornell University, who does research with adult stem cells. Although "unfortunate," he says, "at this stage [a ban] wouldn't even slow progress in the field. We don't know enough to say [therapeutic clones] offer us options that other [technologies] wouldn't."

Even without a legal ban, the technology is simply not ready for a big rush into therapeutic cloning, says John Gearhart of Johns Hopkins University, who works with stem cells from fetal tissue. So far, "it's only been in the mouse that they've demonstrated they can clone an embryo and get embryonic stem cells."

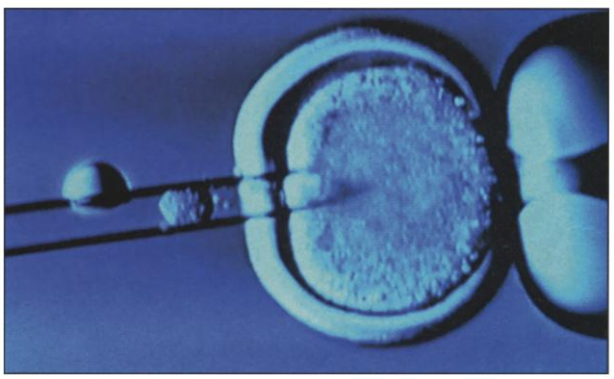
Gearhart also says that many scientists "feel there are ways of getting around [the rejection problem] without the nuclear transfer paradigm." Eventually there might be ways of altering cells to become "universal donors," he says. The recent National Institutes of Health report on stem cells (*Science*, 20 July, p. 413) says nothing about therapeutic cloning but suggests other possibilities including "banks" of stem cell lines.

Ultimately, scientists say, the purpose of therapeutic cloning would be to learn how the nucleus of a cell can be reprogrammed so that the cell reverts to its primitive, undifferentiated state. But many, including West, believe this knowledge might be gained by other means.

The Senate may be ready to outlaw all cloning, too. Majority leader Tom Daschle (D–SD) favors lifting the federal ban on funding ES cell research but said, "I'm very uncomfortable with even cloning for research purposes."

How this debate will affect the fortunes of ES cell research is as yet unclear. Some Republicans are clearly hoping that a fierce anti-cloning stand will exempt them from criticism for supporting ES cell research. But even an ardent fan of ES cell research, Senator Arlen Specter (R–PA), noted last week: "It's pretty hard to get [support for] stem cell research when people are equating it to cloning."

–CONSTANCE HOLDEN



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Forbidden? Microinjection techniques have enabled scientists to remove and insert nuclear material into ooctyes. If the U.S. Congress has its way, this cloning process will be banned in humans.

RUSSIAN SCIENCE

Academy Backs Off Cold War–Style Rules

MOSCOW—The Russian Academy of Sciences has quietly rescinded a controversial directive requiring its 55,000 researchers to report their foreign contacts to the RAS governing presidium. The rule, ostensibly to protect Russian intellectual property, has been replaced by one that simply seeks to help institute directors keep tabs on their more Western-oriented researchers. Watchdogs say that the new rule should calm the fears of scientists who saw a return to Soviet-style authoritarianism.

The existence of the directive, stamped "for internal use only," was first divulged in May by a human rights campaigner. The measure would have required researchers at the 357 RAS institutes to file reports on all international grant applications, articles sent for publication abroad, travel to international conferences, and foreign colleagues visiting Russian labs. The requirements prompted some top scientists to speculate that the directive was influenced heavily by the KGB's successor agency, the Federal Security Service (*Science*, 8 June, p. 1810). An RAS official says it is clear from the directive's wording that it was imposed by another government entity, which he declined to name. "It was recommended to the academy to put its foreign contacts in order," he says.

Last week, an academy spokesperson said the directive was not a major statement of policy and that the new rule is merely a "clarification." "It was just a reminder of how one