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The Great Debate Over Stem Cell Research

By Jessica Reaves

Suddenly, stem cells are everywhere. Once relegated to the depths of esoteric health journals, the microscopic clusters have made their way to the nation's front pages.

The complexity and drama surrounding these relatively simple cells has increased due a ticking clock: By the end of the month, President Bush is scheduled to decide whether to continue federal funding for stem cell research.

The question of using stem cells for research is intrinsically scientific, and yet has become the political cause du jour in Washington. The debate surrounding the cells threatens to rend traditional alliances, challenging our comprehension of life and leaving some abortion opponents in a very uncomfortable spot: Is it possible to protect the strict boundaries inherent in the "sanctity of life" and still harvest these cells to help the living among us?

Bringing the cells to light

In scientific terms, stem cells' rise to fame has been straightforward: Recent studies suggest these cells may hold the secret to treatment — even cures — for some of our most baffling diseases, including Alzheimer's and Parkinson's.

In political terms, however, the ascension has been less smooth. At the heart of the stem cell debate is a battle over abortion — but with a twist. Yes, these are cells from embryos. And according to the religious orthodoxy, an embryo is life. Indeed, some pro-life advocates have likened using stem cells for research to what Nazi doctors did

during World War II. But these cells also hold great promise for millions of ailing patients and their families. Moreover, many of the embryos would otherwise be unceremoniously discarded. The political stakes are high, and almost everyone involved in the debate has been obliged to reevaluate their position.

The political debate

For the first time in his presidency, George W. Bush finds himself in what may prove an unwinnable situation. In the next few weeks, the President is expected to decide whether to continue federal funding for research on human stem cells. The administration itself is sharply divided on the issue; HHS Secretary Tommy Thompson is fiercely in favor of continuing the research, while White House chief of staff Karl Rove, with one eye on the Catholic vote, has cast an adamant ballot against it. (This, despite the fact, that the majority of Catholic voters support federal funding.)

Embryonic stem cells are controversial. They come from the inner cell mass of a blastocyst, the term for a fertilized egg four days after conception. But while many pro-life advocates stand firm in their opposition to using embryonic cells for research, others, including Senator Orrin Hatch, have cast their lot with the scientific community in favor of continuing research funding. High-profile activists, including actor Michael J. Fox, who suffers from Parkinson's disease, have appeared before congressional subcommittees urging that research continue. (Stem cell research, of course, will continue on some level no matter what the President decides; private foundations, clinics, and drug companies are unaffected by government funding).

The scientific debate

What can stem cells do for us? We don't know, exactly. We do know, however, that because stem cells are undifferentiated, (they aren't committed to becoming a liver cell, say, or a blood cell), scientists may be able to prompt them into becoming whatever type of cell is needed. The cells may also be able to replace damaged or sick cells in a patient with an injury or degenerative disease.

Where are scientists getting these cells? Until very recently, the vast majority of stem cells used in research came from discarded (or excess) embryos stored at in-vitro fertilization clinics. If potential parents decide against having more children, scientists working with stem cells might ask them to consider donating the unneeded embryos to research.

In the most controversial method, scientists can also pull stem cells from aborted fetuses, first asking for signed consent from a patient who'd previously (and independently) decided to terminate her pregnancy. This is the procedure most often highlighted by pro-life activists who oppose supporting stem cell research.

As opponents of stem cell research are quick to point out, there are other, slightly less controversial means of culling the precious cells. Unfortunately, none of those methods seems to yield stem cells with the same vitality and versatility as those taken from embryos.

Is there another way?

Adult stem cells taken from the blood or organs of healthy adults have recently demonstrated an unexpected adaptability in lab experiments. But these cells are marginally helpful to scientists, and do not show the same promise as those culled from embryos. Adult cells are fairly set in their ways, and don't seem to grow or replicate themselves as quickly as their younger counterparts.

New techniques for gathering the cells are in quiet development; scientists are generally wary of disclosure, because public reaction is difficult to predict. Revelations that scientists at a privately-funded Virginia fertility clinic are growing human embryos with the intent of harvesting stem cells have provoked widespread hand-wringing, among both advocates and opponents of stem cell research. Advocates worry that publicizing such a blatant and systematic cell harvesting procedure can only harden hearts against the science; in the crude terms of public relations, using stem cells from discarded embryos is one thing, but purposefully creating an embryo only to dismantle it is something else altogether. Opponents of

the research see the Virginia clinic's methodology as the best indication yet that we are carelessly sliding down the slippery slope of destroying human life in order to advance our scientific curiosity.

Science is the search for answers

Beyond the political debate swirling around stem cells, there remains a great deal of scientific skepticism. Will stem cells help us understand the course of cellular development and differentiation? Could we develop stem cells for transplant that did not set off an autoimmune attack from their new host? Some day in the future, could scientists use stem cells to eliminate the need for human subjects in drug tests?

For pro-life advocates, the moral cost of continuing such research outweighs any potential benefits. For scientists, however, the possibilities are both awe-inspiring and bewildering. No one denies the moral dilemma of the stem cell debate. But to turn back now, researchers say, would be tantamount to turning our backs on a bright, sustaining light because we are terrified of the shadows it creates.