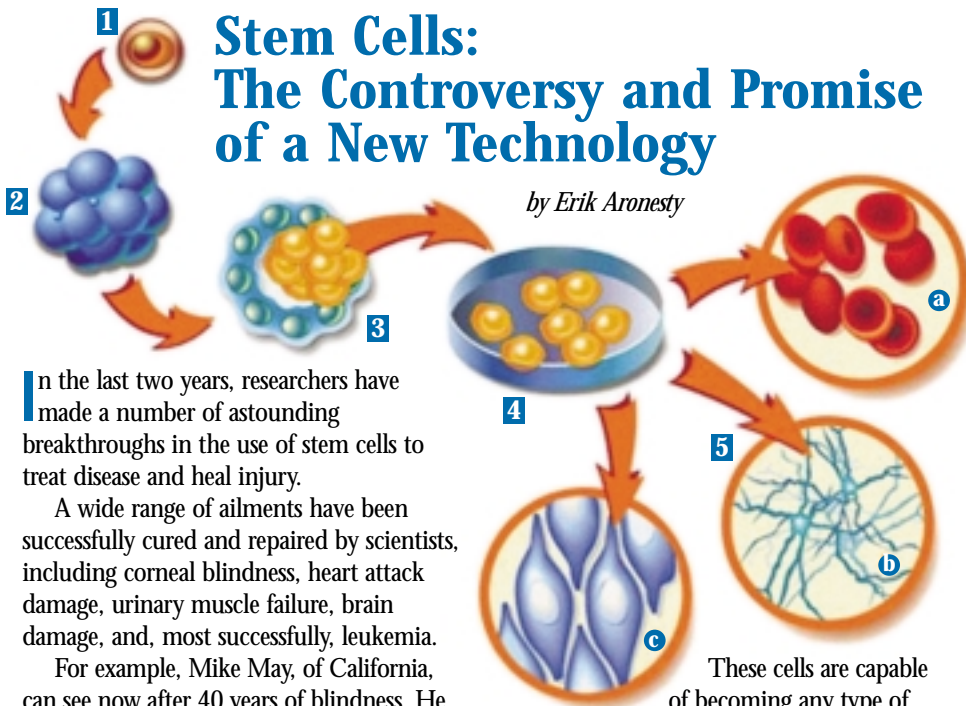


Stem Cells: The Controversy and Promise of a New Technology

by Erik Aronesty



1. In Vitro Fertilized Egg
2. Blastocyst Stage (5-7 days old)
3. Inner Stem Cell Mass
4. Cultured Undifferentiated Stem Cells
5. Specialized cells:
 - a. blood cells
 - b. neural cells
 - c. muscle cells

In the last two years, researchers have made a number of astounding breakthroughs in the use of stem cells to treat disease and heal injury.

A wide range of ailments have been successfully cured and repaired by scientists, including corneal blindness, heart attack damage, urinary muscle failure, brain damage, and, most successfully, leukemia.

For example, Mike May, of California, can see now after 40 years of blindness. He was blind since he was 3 years old. This January the Prasad Institute in India inaugurated a facility dedicated to using stem cells to cure people with corneal damage.

In response to my inquiry about stem cells, Bruce Klein, Chairman of the Immortality Institute, states, "Stem-cell research shows that it is possible to reverse the effects of aging and cure disease in the human body. Work done on Somatic Cell Nuclear Transfer (SCNT) or therapeutic cloning, such as that by Michael D. West, Ph.D. from Advanced Cell Technology, reveal the promise of making any cell type available so that patients can accept the cells into their body without rejection."

So, if stem cell therapy can be used to cure so many problems, why is it so controversial?

Throughout our bodies "adult" stem cells serve as repair machines, producing new cells as old cells die off from age or damage. We have bone stem cells, blood stem cells and brain stem cells, for example. These cells can be extracted, cultured and used to repair damage, but only to the regions that they are in. Also, if the damage is due to aging, then these cells won't help, since they have also aged with the body.

While researchers cannot use adult stem cells to cure a wide range of diseases, they can use "embryonic" stem cells.

When an egg is fertilized, it begins to divide into a microscopic cell cluster known as a blastocyst. Many of the cells within that cluster are "embryonic" stem cells (ESC's).

These cells are capable of becoming any type of tissue and can potentially repair and renew almost any damaged or aging organ in the body. ESC's are also prevalent in umbilical cord tissue, which is why many new parents, including myself, choose to have their newborn's umbilical cord frozen and stored.

The controversy surrounding stem cells is focused only on those ESC's that are derived from a fertilized egg.

In my opinion, there is no clear answer as to what is moral or immoral in this area, and it comes down to personal choice.

If you believe that it is morally wrong to take living cells out of a 3-day-old fertilized egg and implant them into adult people, then you cannot ethically support embryonic stem cell research or, for that matter, in-vitro fertilization. It is just as morally vexing today as it was 25 years ago, when Louise Joy Brown, the world's first successful test-tube baby, was born.

Politically, stem cells are a hot topic.

Our President has appointed a very conservative bioethics council and has issued laws preventing public funding from being used to research ESC's. This council generally finds life-extending technologies to be morally vexing. Their chairman, Leon Kass, has said "the desire to prolong youthfulness is an expression of a childish and narcissistic wish."

He has published long and philosophical complex articles arguing against the technological pursuit of longer, healthier lives.

Recently, Nancy Reagan took a step outside of her traditional politics, and voiced strong support for stem cell research.

"I just don't see how we can turn our backs on this... We have lost so much time already. I just really can't bear to lose any more."

She is the latest high-profile figure to criticize the Bush administration on his stem cell policies. Others, to name a few, include Gerald Ford, Bill Clinton, Christopher Reeve, Michael J. Fox. The Union of Concerned Scientists, which includes 20 Nobel Laureates, issued a 37-page report on the misuse of science for political aims. Misreporting and misclassifying stem cell research for political gain was featured prominently in that report.

Regardless of your political background, be prepared to see stem cell therapies showing up in the news with new miracle cures and breakthroughs in the coming years.

The California Stem Cell Research and Cures Initiative is a statewide ballot measure that intends to put \$3 billion of public funding into stem cell research in California. Proponents hope to revitalize California's economy, while simultaneously saving lives and reducing health-care costs. A similar \$6.5 million stem cell research fund was started in New Jersey earlier this year.

In the current political environment, it is unclear what the consensus is on using ESC's. Whatever the case may be, now is not the time to be shy about our opinions on this crucial issue.

References:

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