

*An "educational video" on stem cell research leaves science in disgrace*

## Science and Spin

BY Wesley J. Smith

Scientists should be up in arms against "science advocates" who undermine the reputation of science by engaging in deception, obfuscation, spin, and hype to win the political debate over embryonic stem cell and human cloning research. The latest such low blow comes from the Houston-based Alliance for Medical Research, a non-profit educational organization with informal ties to the Baylor College of Medicine, also in Houston, in its new video, *Regenerative Medicine: Pathway to Cures*. The video, which claims to be "educational," is actually a 14-minute exercise in propaganda. It is a disgrace to the scientific community.

Within seconds of the video's opening, an announcer tells viewers:

Now with this revolutionary breakthrough of regenerative medicine doctors will actually be able to cure diseases, not just treat them with pills and shots. Insulin-producing cells will be injected into the diabetic child to cure diabetes. Retinal cells will be injected to make the blind see. Nerve cells will be used to make the quadriplegic walk again. Stem cell research has the potential to cure over 130 million Americans plagued by chronic degenerative diseases and conditions. This is the potential that stem cell research holds for us.

In reality, scientists do not know whether embryonic stem cells will ever "cure" anything. Indeed, it is possible that they will never be able to be used in human beings due to safety concerns—such as the potential for tumor formation and immune rejection. They might not work as hoped, or if they do, their most efficacious use might be to alleviate symptoms rather than effect actual cures. The point is: No reputable scientist would claim today that "nerve cells" created with embryonic stem cells "will be used to make quadriplegics walk again."

*Pathway to Cures* goes downhill from there. Seeking to promote human cloning, the video describes somatic cell nuclear transfer (SCNT) as creating a "manufactured egg cell" that will provide "a unique opportunity to grow a patient's own cells for repairing or replacing his or her diseased cells."

This is balderdash. SCNT—which is a technique of asexual reproduction, a.k.a., cloning—actually creates a new embryo, not a "manufactured egg cell." As an article published in the December 27, 2000, *Journal of the American Medical Association*—written by several bioethicists and biologists who strongly support SCNT research—put it, "CRNT [cell replacement through nuclear transfer] requires the deliberate creation and disaggregation of a human embryo." Thus, just as Dolly the cloned sheep began her biological existence as a cloned sheep embryo, assuming that human cloning can ever be done, the result of the process would be the creation of a nascent human organism—not an egg.

The video also describes "therapeutic cloning" in the present tense—as if it can already be done in humans:

This manufactured egg cell containing the patient's DNA is stimulated to divide for about 5 days to produce stem cells, which contain only the patient's DNA. [False: It also contains

mitochondrial DNA from the egg, but never mind that.] Scientists add cell proteins and growth factors to these stem cells to coax them into becoming the type of cells needed to cure the patient without the complication of rejection, because these cells contain the patient's DNA. These stem cells are then transferred into the patient to repair or replace the damaged cells and they are not rejected.

In fact, some animal studies show that cloned embryonic stem cells may be rejected. Moreover, despite years of effort, researchers have not yet been able to create cloned human embryonic stem cell lines. Indeed, it is possible that they never shall.

The video then assures viewers that we need not fear the birth of a baby from somatic cell nuclear transfer cloning:

What is the difference between a fertilized egg and SCNT? With a fertilized egg the DNA comes from a man, the sperm cell, and a woman, an egg cell, so the genes necessary for fetal development are programmed to be properly expressed making further development possible if the fertilized egg is implanted in a uterus. This is not the case with SCNT. With SCNT, the DNA comes from the patient's somatic cell, not the union of a sperm cell and an egg cell. Thirty to fifty percent of the genes necessary for fetal development do not properly express.

Forget for the moment that the failure of gene expression in human "manufactured egg cells" has not been observed because scientists have been unable to maintain cloned embryos to the point that fetal gene expression could actually be studied: It is true that serious gene expression failures have been observed in animals. But these defects have not prevented cloned animals from surviving to live birth. Indeed, cows, sheep, pigs, mice, horses, and other animals are now routinely created through SCNT both for medical research and breeding purposes, all despite gene expression defects.

In addition to making false claims in favor of cloning and embryonic stem cell research, Pathway to Cures also engages in outright deception about the promise of adult stem cell research. For example, the video claims (falsely) that adult stem cells "can only become the cell types of their own particular organ system." But it has been long established that adult stem cells are at least multipotent—that is, they can become several types of tissue, not just from the organ system from which they were extracted. Moreover, umbilical cord blood stem cells and bone marrow stem cells might even be pluripotent, that is, capable of becoming almost every type of tissue. Umbilical cord blood stem cells, for example, have been morphed into dime-sized sections of liver tissue that can already be used to test drugs.

Pathway to Cures then makes an astounding assertion: "Parkinson's disease has been cured in chimpanzees," it claims, using "embryonic human stem cells." Can this be true? Surely, such a breakthrough would have made international headlines. Indeed, if chimps had really been "cured" of Parkinson's disease, Michael J. Fox would have touted the experiment in his controversial political ads in support of embryonic stem cell research in the recent election.

I consulted some scientist friends who are deeply involved in the stem cell debate. They hadn't heard of the experiment either, but agreed to check the science and medical journals. The closest experiment anyone could find on the subject was performed with monkey embryonic stem cells, not human, injected into macaques, not chimpanzees, with the cells apparently alleviating some symptoms—but not coming anywhere close to a "cure." Unless the Parkinson's chimp experiment is the best kept secret in the history of medicine, the Alliance for Medical Research is either confused or making more false claims.

In short, Regenerative Medicine: Pathway to Cures is drivel. Unfortunately, such mendaciousness is becoming par for the course in pro-cloning advocacy.

Wesley J. Smith is a senior fellow at the Discovery Institute.