

Why Would the Leader in Embryonic Stem Cell Research Drop Out?

Translating Theory Into Treatments More Difficult Than Expected

WASHINGTON, D.C., NOV. 30, 2011 (Zenit.org).- Here is a question on bioethics asked by a ZENIT reader and answered by the fellows of the Culture of Life Foundation.

Q: Now that Geron has discontinued its embryonic stem cell research, while at the same time adult stem cell experiments have had a number of successful trials, what does this mean for the stem cell debate? - FJF, Australia.

E. Christian Brugger replies:

Two weeks ago a bombshell exploded on the field of human embryonic stem cell (hESC) medicine. The undisputed leader in clinical research on hESCs, Geron Corporation, announced that it was immediately ending its clinical trials using hESCs and pulling out of the embryonic stem cell business altogether to focus on cancer research.

The name *Geron* had become synonymous with hESC-based treatments, especially after the Menlo Park, California, company announced in October 2010 that it had begun the first clinical trials in the United States using hESCs. The company defended the controversial experiments saying it had not created new embryos, but only used "surplus" embryos left over from fertility treatments.

Geron built its reputation over the last decade -- and its shareholder portfolio -- hyping the miraculous promise of hESCs. And it was triumphant when it received the first license last year from the Food and Drug Administration (FDA) to inject the cells into people. A total of five patients received the treatments and no clinical benefits were reported (and you better bet that if there'd been anything to report, the media would have trumpeted it from the rooftops). But neither were any problematic side-effects reported such as the ubiquitous problem of tumor formation.

What does the Geron announcement imply about the condition of the field of hESC research? Consider the situation. Geron Corp. is the frontrunner in a cutting-edge and promising field and has raised millions of dollars on investors' hopes for miraculous cures. It has produced more experimental drugs derived from hESCs than perhaps any other company in the world. Yet, a little more than a year after receiving a \$25 million award from the California Institute for Regenerative Medicine for hESC research, it announces that it's abandoning the field altogether, and immediately takes a financial bath (its stock fell by as much as 28% the day after the company made its announcement). One scientific blogger put it this way: "If Embryonic treatments were a horse race, Geron would be the strongest horse in the field. Geron would be the horse who was 9/10 of the way around the track with all other competitors still milling about in the starting blocks. So what would make that horse stop dead in his tracks, fall flat on his face and walk away from the race?"

Despite Geron's attempt to spin its decision as having nothing to do with the clinical promise of hESCs ("Stem cells continue to hold great medical promise," [announced Geron's CEO John Scarlett](#)), the news very clearly signals the absence of short term gain by continuing the research. By short term I mean the next five to 10 years: no treatments are on the horizon and translating theory into useful bedside medicine is more difficult than anyone originally thought. This means that any financial pay-off from the work is too far off in the distance to justify staying the course. Even the [most enthusiastic advocates](#) of hESC research admit that the Geron decision was a setback for the field ("I think there is no way to spin this as a good thing and in fact it is terrible news," lamented one prominent blogger). It was also a blow to Geron's reputation. [Most reactions](#) to the announcement in the international press were scathing.

But the Geron decision is nothing more than a startling but predictable symptom of the declining health of the field of hESC research generally. Despite hundreds of millions of dollars spent on the science over the past decade, not a single useful treatment for humans has been developed. The FDA has approved only two clinical trials, one of which has now been abandoned (the other license was given to the Massachusetts biotech company, [Advanced Cell Technology](#)). Since Shinya Yamanaka of Japan's University of Kyoto announced in 2007 his method for converting adult skin cells into the functional equivalent of embryonic stem cells (called "induced pluripotent stem cells," iPSCs), more and more stem cell scientists have shifted attention from hESCs to iPSCs.

But we mustn't think the field is dead and the war against unethical stem cell research has been won. Breakthroughs in embryonic stem cell research continue to be published, although not in clinical trials with humans (see the remarkable studies reported on [Nov. 7](#) and [Nov. 9](#)). Even if all profit-driven institutions abandon the field, which is unlikely, non-profit labs will continue to experiment on human embryos. And eventually -- I say eventually -- the technical problems with hESCs will be overcome.

Defenders of human embryos must continue to do two things. First, we must continue to get out the word on the wide-ranging clinical benefits of *adult stem cells*. One [knowledgeable blogger](#) writes: "Most patients in the U.S. have no idea Adult Stem Cells have been treating over 100 diseases around the world for up to a decade. Thousands of clinical trials and peer reviewed papers from around the world show their safety and efficacy." Second, we need to support -- with our prayers, money and votes -- research into ethical alternatives for deriving pluripotent stem cells.

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