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Scientists urge stem cell reality check

Actual treatments still years off, experts say

BY SUZANNE BOHAN, STAFF WRITER

HALF MOON BAY — In an elegant hotel overlooking the Pacific Ocean, more than 30 of the world's leading stem cell researchers gathered on Wednesday to strategize on the most effective means of developing novel stem cell medical treatments, while keeping public expectations in line with the actual state of scientific research.

The oft-cited potential of stem cells to one day possibly curing devastating ailments such as Parkinson's disease, spinal cord injuries and diabetes is also luring desperate patients to try so-called stem cell therapies abroad, six stem cell researchers at a noon news conference emphasized.

This "medical tourism" is almost certain to lead to disappointment and even danger, warned Dr. George Daley, president of the International Society for Stem Cell Research, which organized the daylong event at the Ritz-Carlton hotel.

"One has to be realistic. Cures take a very, very long time," Daley said. "One has to be very suspicious if a patient is asked to fly to a distant location and pay tens of thousands of dollars (for treatment). This is an invitation for exploitation."

These unproven treatments, dozens of which are offered online, could also pose medical hazards, Daley said.

Another panelist, Sir Ian Wilmut, Ph.D. — the University of Edinburgh scientist who led the team that in 1997 announced the birth of a sheep named Dolly, the first mammal cloned from an adult cell — said that the risk is "serious" that medical tourism for alleged stem cell treatments will continue to expand.

"I've had approaches from people with one of these unpleasant diseases, and I'm not a clinician," said Wilmut. "You would understand that people would be tempted to try anything."

Also sitting on the news conference panel were Dr. Robert Goldstein, chief scientific officer with the Juvenile Diabetes Research Foundation; Robert Klein, chair of the governing body for the California Institute for Regenerative Medicine; Story Landis, Ph.D., chair of the National Institutes of Health's Stem Cell Task Force; and Dr. Olle Lindvall, a neurologist with the University of Lund in Sweden.

The panelists devoted much of their discussion to guidelines the International Society for Stem Cell Research will issue later this year for identifying or developing credible stem cell research initiatives.

"The guidelines are not to prevent the development of stem cell therapy," Lindvall added. "They're actually to help and guide those that are working in a serious way."

Wednesday's conference was the first global gathering organized by the society, a premier stem cell research organization with a membership roster that includes the luminaries of the field. During the event sessions, which were closed to the public and the press, participants explored the scientific, clinical, regulatory, ethical and social issues of the complex and promising research.

Stem cell research, still in its early stages, holds the hope that one day scientists can coax these cells into forming tissue such as nerve cells for treating conditions like Parkinson's disease or central nervous system injuries, pancreatic cells for curing Type 1 diabetes, and cardiac muscle for replacing damaged hearts. Stem cells, found in days-old embryos, are capable of developing into any of the more than 200 types of tissue found in the human body. But the field is far from being able to develop these tissues reliably, much less safely transferring them into humans and ensuring they continue to function as programmed.

When more extensive testing with stem cells begins in coming years, public expectations for these early experiments also need to be tempered, stressed Klein, who spearheaded the successful 2004 proposition campaign that led to the creation of the state's Institute for Regenerative Medicine, which funds basic stem cell research.

"It's critical for the public to understand that a trial is exactly that," he said. "There will be defeats, and there will be victories."

But this promise of tissue transplantation is only one aspect of the value of stem cell research, emphasized Renee Reijo Pera, Ph.D., the director of human embryonic stem cell research at Stanford University's Institute for Stem Cell Biology and Regenerative Medicine.

By developing lab cultures of stem cells, researchers also can study disease processes that will likely speed along drug discovery, she explained.

"(Stem cell research) will improve human health, in one or more arenas," predicted Reijo Pera, who didn't attend the conference.

Wilmut and Klein enthusiastically agreed that the nearer-term promise for stem cell research lies in its potential for aiding the development of new, valuable drugs by testing them on human cultured cells.

"That's a view that I would subscribe to very strongly," Wilmut said.

"There's the potential to accelerate drug development and reduce the cost of drug development with human cell lines," Klein agreed.

Underlying the meeting was the message that despite the recent stunning announcement that adult skin cells can be coaxed into reverting into stem cells potentially capable of developing into any human tissue, controversial research on embryonic stem cells must continue for the field to advance.

Due to objections by religious groups and other organizations, the Bush administration in 2001 banned federal funding of embryonic stem cell research, except for 64 stem cell lines already isolated.

Researchers state those cell lines have limited research usefulness and have spearheaded private or state initiatives to fund stem cell research in the United States.

Embryonic cells provide a unique window on human development that can't be attained by reversing the pattern in an adult cell, allowing deeper insight into many conditions, such as diseases caused by chromosomal abnormalities, or infertility, said Daley.

"There will never be a time when we don't need human embryo research," Daley said.

In February, researchers at the University of California, Los Angeles, reported that by inserting four regulator genes into the DNA of adult skin cells, they induced the cells to reverting back to the stem cells from which they originated. The results confirmed similar work conducted at Kyoto University and the University of Wisconsin in November.

The long-sought results electrified the scientific world, for it meant scientists could sidestep the controversial endeavor of using stem cells derived from embryos to pursue their research.

In addition, the technique potentially allows researchers to create genetically-matched tissue for treating diseases, avoiding the pitfall of a patient rejecting a genetically-incompatible transplant.

There is no reason to abandon human embryonic research, said Landis, chair of the federal Stem Cell Task Force.

Over a year ago I testified stating that, and I still have my job, she added with a smile.

You would not want, at this point, to lock any one of those doors, Landis said.