WORLD & NATION

Researcher says stem-cell debate educates public

By Nancy Frazier O'Brien
Catholic News Service

BALTIMORE – Despite continuing confusion about the nature of stem cells, the national debate over the complex topic is prompting "a lot of public education and interest," according to the president and CEO of a leading biotech firm.

"We have a very educated public now," said Dr. Annemarie B. Moseley, a medical doctor who also holds a doctorate in physiology and biochemistry and heads Osiris Therapeutics Inc. in Baltimore. "We see a lot of public support for what seems like 'Star Wars' technology, like the '$6 Billion Man.' People see it as part of their future, as part of their children's future."

Osiris, which does research involving adult mesenchymal stem cells, is testing gene therapies that could repair bone loss caused by cancer, regenerate cartilage in joints to slow the progress of arthritis, help cardiac muscle heal after a heart attack, and accomplish other modern-day miracles.

And all without becoming involved in the controversial arena of embryonic stem-cell research. Osiris has "chosen not to look at prenatal sources" for stem cells in research, Moseley said.

In early August, President Bush was considering whether to lift the federal ban on funding stem-cell research that involves the use of human embryos.

Interviewed Aug. 1 at her company's headquarters in the Fells Point neighborhood of Baltimore, Moseley said some have tried to polarize discussions over stem-cell research by claiming either that embryonic stem-cell research can cure all ills or that adult stem-cell research can do so.

"There is not enough information to support one (view) or the other," she said.

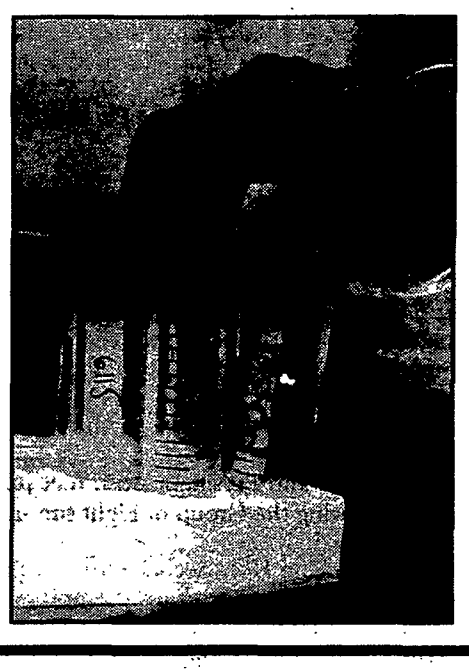
But Moseley sees adult stem-cell research – which she says would more precisely be called "postnatal" stem-cell research because it refers to cells taken from anyone after birth – as "leading the way" in the biotechnology field, especially in terms of the government approval process.

Martin Luedera/CNS

(Above) a researcher at Osiris Therapeutics in Baltimore works with materials for testing gene therapies that would use adult mesenchymal stem cells to treat problems such as bone loss, damaged heart muscles and damaged cartilage.

The firm, which already holds 21 patents from the Food and Drug Administration for its discoveries in regenerative medicine, "has been able to work closely with the FDA" to develop and meet standards for regulating the new field, she said.

Osiris has been able to show that the adult stem-cell lines it has developed can be implanted, injected or infused into a patient without the cells doing "anything other than responding appropriately to the environment," Moseley said. That test will be much more difficult to meet for research involving embryonic stem cells, which by their nature are designed to grow into a variety of tissues, she added.



Moseley believes some of the interest in the work being done by Osiris is fueled by the desire of an aging American population to be able to remain active.

Mesenchymal stem cells are progenitor cells that give rise to connective tissues including bone marrow stroma, bone, cartilage, ligament, tendon, muscle and fat. As a person ages, there are fewer and fewer stem cells available naturally in the body to help it heal and regenerate.

"This is a new era for medicine in general," Moseley said. "Doctors are asking, 'What mechanisms do we have to put functionality back into tissue?" Patients want something that will get them back to where they were before (the effects of injury or age), that will prevent degeneration down the road, or at least decrease it."

But despite their increased knowledge about stem-cell research, Americans still suffer from a basic misconception about what embryonic stem cells can and will do, Moseley said.

"People think you can take an embryonic stem cell, put it in a pancreas or a lung and it's going to form that tissue," she said. "But that's completely wrong.

"The embryonic stem cell's mission is to give rise to an entire organism, and that's what it's going to want to do," she added, noting that embryonic stem cells can prompt the growth of bone, hair or even teeth in other parts of the body.

But adult stem cells, she said, "live in an adult environment and know what they are supposed to do." They do not have to be "completely reprogrammed," as embryonic stem cells do, to perform one task well, she added.

In the complex field of stem-cell research, Moseley said, scientists can only be sure that much is yet to be discovered.

"What's the full potential?" she said. "I don't think anyone knows that."

Survey shows opposition over genetic modification

WASHINGTON (CNS) – Although most American Christians believe humans should use their knowledge to improve the lives of others, the majority opposes the genetic modification of food and animals, according to a new survey.

The Zogby International poll was conducted in mid-July for the Pew Initiative on Food and Biotechnology, and was released July 26 during a panel discussion on "Genetically Modifying Food: Playing God or Doing God's Work?"

Asked about their own religious, ethical or moral views on whether man should move genes from one species or organism to another, 57 percent of Protestants and 52 percent of Catholics said they were opposed to such manipulation. Among those who identified themselves as born-again Christians, 62 percent said they were against it.

Jews were the only religious group in which a majority supported such biotechnology, with 55 percent in favor and 35 percent opposed. Among Muslims, 46 percent opposed genetic engineering, 32 percent supported it and 22 percent were not sure.

In response to another question, 54 percent of Protestants, 55 percent of Catholics, 62 percent of Jews and 61 percent of Muslims agreed that "humans have been empowered by God to use such knowledge to improve the lives of humans everywhere."

Only 37 percent of Protestants, 34 percent of Catholics, 20 percent of Jews and 24 percent of Muslims agreed that "humans are playing God and interfering in things we don't understand."

Nancy Wiechec/CNS

More than half of all U.S.-grown soybeans are from genetically engineered crops. Genetic modifications can make plants more resistant to pesticides, freezing and spoilage.

The survey respondents then were asked to choose their definition of "playing God" from a list of five possible statements. The preferred response for all religions was the statement, "Who controls the technology and who is exposed to its risks is an issue." It was chosen by 26 percent of Protestants and Catholics, 32 percent of Jews and 19 percent of Muslims.

Selecting the statement "Man is demonstrating a lack of humility toward nature" were 15 percent of Protestants, 13 percent of Catholics, 9 percent of Jews and 12 percent of Muslims.

Another popular answer, however, was that the respondent was not sure. This was chosen by 15 percent of Protestants, 16 percent of Catholics, 24 percent of Jews and 25 percent of Muslims.

Other possible choices were that "man's role as a good steward of nature has been violated," that the "sense of the natural purity of organisms has been violated" or that science has become a "false priesthood."

Asked whether humans have an obligation to improve the world, or to preserve and not change it, 38 percent of Protestants, 41 percent of Catholics, 60 percent of Jews and 49 percent of Muslims said they should improve the world.

Calling for "a balance between the two" were 43 percent of Protestants, 32 percent of Catholics, 27 percent of Jews and 23 percent of Muslims.

"This survey shows that, while Americans have concerns about moving genes between different species, they also support the idea that we have been empowered by God to understand nature and use science and technology to improve the human condition," said Michael Rodemeyer, executive director of the Pew initiative.

The margin of error for the survey of 1,117 adults was plus or minus 5 percent for Protestants, 5.7 percent for Catholics, 7 percent for Jews and 9 percent for Muslims.

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