

Name _____
Literacy Lab #12: "Women... egg cells"

Date _____
Living Environment: Comet 2011-2012

"Report: Women have rare egg-producing stem cells"

Directions: Take a few minutes to read the article below either online (or on the back of this page.) Write responses to the statements or questions below. Cut/copy/paste is not allowed – use your own words and thoughts, based in research if needed.

Read more: <http://www.foxnews.com/health/2012/02/27/report-women-have-rare-egg-producing-stem-cells/#ixzz1naqYtkUF>

Fact-finding: List three facts that you learned in this article.

- 1.
- 2.
- 3.

Vocabulary: List and define three unfamiliar words in the space below.

Implications: What are your feelings about this "discovery"? Why is this type of research important/unimportant? Fully explain your answers.

Report: Women have rare egg-producing stem cells

Published February 27, 2012

Associated Press

For 60 years, doctors have believed women were born with all the eggs they'll ever have. Now Harvard scientists are challenging that dogma, saying they've discovered the ovaries of young women harbor very rare stem cells capable of producing new eggs.



If Sunday's report is confirmed, harnessing those stem cells might one day lead to better treatments for women left infertile because of disease - or simply because they're getting older.

"Our current views of ovarian aging are incomplete. There's much more to the story than simply the trickling away of a fixed pool of eggs," said lead researcher Jonathan Tilly of Harvard's Massachusetts General Hospital, who has long hunted these cells in a series of controversial studies.

Tilly's previous work drew fierce skepticism, and independent experts urged caution about the latest findings.

A key next step is to see whether other laboratories can verify the work. If so, then it would take years of additional research to learn how to use the cells, said Teresa Woodruff, fertility preservation chief at Northwestern University's Feinberg School of Medicine.

Still, even a leading critic said such research may help dispel some of the enduring mystery surrounding how human eggs are born and mature.

"This is going to spark renewed interest, and more than anything else it's giving us some new directions to work in," said David Albertini, director of the University of Kansas' Center for Reproductive Sciences. While he has plenty of questions about the latest work, "I'm less skeptical," he said.

Scientists have long taught that all female mammals are born with a finite supply of egg cells, called oocytes, that runs out in middle age. Tilly, Mass General's reproductive biology director, first challenged that notion in 2004, reporting that the ovaries of adult mice harbor some egg-producing stem cells. Recently, Tilly noted, a lab in [China](#) and another in the U.S. also have reported finding those rare cells in mice.

But do they exist in women? Enter the new work, reported Sunday in the journal *Nature Medicine*.

First Tilly had to find healthy human ovaries to study. He collaborated with scientists at Japan's Saitama Medical University, who were freezing ovaries donated for research by healthy 20-somethings who underwent a sex-change operation.

Tilly also had to address a criticism: How to tell if he was finding true stem cells or just very immature eggs. His team latched onto a protein believed to sit on the surface of only those purported stem cells and fished them out. To track what happened next, the researchers inserted a gene that makes some jellyfish glow green into those cells. If the cells made eggs, those would glow, too.

"Bang, it worked - cells popped right out" of the human tissue, Tilly said.

Researchers watched through a microscope as new eggs grew in a lab dish. Then came the pivotal experiment: They injected the stem cells into pieces of human ovary. They transplanted the human tissue under the skin of mice, to provide it a nourishing blood supply. Within two weeks, they reported telltale green-tinged egg cells forming.

That's still a long way from showing they'll mature into usable, quality eggs, Albertini said.

And more work is needed to tell exactly what these cells are, cautioned reproductive biologist Kyle Orwig of the University of Pittsburgh Medical Center, who has watched Tilly's work with great interest.

But if they're really competent stem cells, Orwig asked, then why would women undergo menopause? Indeed, something so rare wouldn't contribute much to a woman's natural reproductive capacity, added Northwestern's Woodruff.

Tilly argues that using stem cells to grow eggs in lab dishes might one day help preserve cancer patients' fertility. Today, Woodruff's lab and others freeze pieces of girls' ovaries before they undergo fertility-destroying chemotherapy or radiation. They're studying how to coax the immature eggs inside to mature so they could be used for in vitro fertilization years later when the girls are grown. If that eventually works, Tilly says stem cells might offer a better egg supply.

Further down the road, he wonders if it also might be possible to recharge an aging woman's ovaries.

The new research was funded largely by the [National Institutes of Health](#). Tilly co-founded a company, OvaScience Inc., to try to develop the findings into fertility treatments.

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