



Nature Medicine Study Demonstrates Eggs Can Mature From a Woman's Own Egg Precursor Cells

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OvaScience Co-Founder, Dr. Jonathan Tilly, Confirms Potential New Treatment Paradigm for Infertility

BOSTON, Mass., February 27, 2012 - OvaScience™, a fertility company focused on the discovery, development and commercialization of novel treatments for infertility, today announced the publication of results demonstrating that ovaries of reproductive-age women possess egg precursor cells that can mature into eggs. These studies were published today in the Advanced Online Publication of the journal *Nature Medicine* and confirm the identity of these egg precursor cells, which were initially reported in the journal *Nature* in 2004 by Jonathan Tilly, Ph.D., co-founder of OvaScience, director of the Vincent Center for Reproductive Biology, chief of research for Massachusetts General Hospital (MGH) Vincent Department of Obstetrics and Gynecology and professor, Department of Obstetrics, Gynecology and Reproductive Biology at Harvard Medical School (HMS).

In this newly published study, Dr. Tilly and his colleagues developed a strategy to purify egg precursor cells from ovaries of adult female mice and ovaries from reproductive-age women. Reintroduction of mouse egg precursor cells back into adult mouse ovaries led to the maturation of new eggs that could be ovulated and fertilized to yield healthy embryos. Parallel studies conducted with human egg precursor cells confirmed that these cells, like their mouse counterparts, could mature into eggs. The maturation took place by reintroducing the human egg precursor cells into human ovarian tissue that was grafted into female mouse hosts. These mice were lacking a functional immune system in order to prevent rejection of the tissue.

"This study demonstrates that purified mouse egg precursor cells can mature into fully functional eggs that can then be successfully fertilized to produce healthy blastocyst-stage embryos," said Dr. Tilly. "We also demonstrated that human egg precursor cells not only exist in ovaries of reproductive-age women, but that these newly discovered cells possess the same features that permit maturation into eggs that are held by their mouse counterparts. The results presented in this new study confirm and extend our previous work on egg precursor cells in adult ovaries, opening the prospect that human assisted reproduction may be provided with new tools to combat infertility caused by aging or insults."

In 2004, in the journal *Nature*, Dr. Tilly and his team published research conducted in mice that challenged the long held belief that females are born with a finite number of eggs. His initial discoveries with mouse ovaries were independently confirmed by other labs over the past several years. His identification of egg precursor cells in adult human ovaries now reported in *Nature Medicine* brings this prior mouse work into the realm of human biology. OvaScience has exclusively licensed an issued U.S. patent containing composition claims covering the isolated egg precursor cells discovered by Dr. Tilly.

The paper, entitled "Purification, propagation and characterization of mitotically active germ cells from ovaries of reproductive age women", is available in the Advanced Online Publication of *Nature Medicine* at <http://www.nature.com/nm/index.html> and will be published in the March issue of the journal.

"This research conducted by Dr. Tilly and his team at MGH, and exclusively licensed by OvaScience, has the potential to enable the development of new treatment options for infertility," said Scott Chappel, Ph.D., chief scientific officer of OvaScience.

About Infertility

According to the Centers for Disease Control and Prevention (CDC), approximately 6.1 million women in the United States of reproductive age have difficulty getting pregnant or staying pregnant. Sixty percent of IVF cycles are performed in women more than 35 years of age. In women more than 40 years of age, IVF has less than a 15 percent success rate. IVF can cause significant physical, emotional and financial challenges.

About OvaScience

OvaScience is a privately-held fertility company focused on the discovery, development and commercialization of novel treatments for infertility. OvaScience was co-founded by Rich Aldrich, Michelle Dipp, M.D., Ph.D., and Christoph Westphal, M.D., Ph.D., of Longwood Fund, and Professors Jonathan Tilly, Ph.D., Massachusetts General Hospital and Harvard Medical School, and David Sinclair, Ph.D., Harvard Medical School.