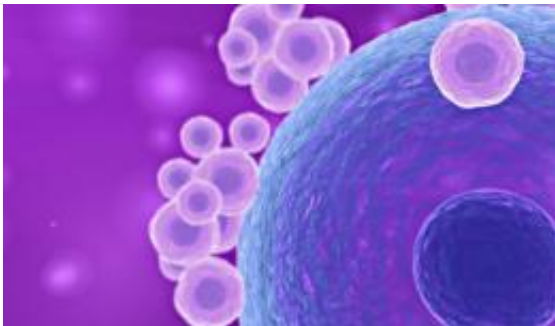


A new method for picking the 'right' egg in IVF

June 1 2012, By Karen N. Peart



(Medical Xpress) -- In a groundbreaking study, Yale School of Medicine researchers and colleagues at the University of Oxford have identified the chromosomal make-up of a human egg. This discovery may soon allow them to avoid using abnormal — or aneuploid — eggs during infertility treatments, and instead to pick eggs that are healthy enough for a successful in vitro fertilization (IVF) cycle.

The results are published in the May issue of the journal *Human Reproduction*.

Only a few oocytes ([eggs](#)) per IVF treatment cycle are able to produce a pregnancy because many eggs have the wrong number of chromosomes. If the egg is missing a chromosome or has an extra chromosome, this is

referred to as aneuploidy. This problem increases as women age.

Oocytes are surrounded by cells, called cumulus cells, which regulate and assist the process of egg maturation. In this study, Yale Fertility Center director Dr. Pasquale Patrizio, and Dagan Wells of the University of Oxford studied genes expressed in the cumulus cells. They were able to identify a set of genes that are less active in cells that are associated with abnormal eggs.

They characterized two genes — SPSB2 and TP5313 — and found that the expression of these genes was consistently underrepresented in cumulus cells that surrounded abnormal eggs, while these same genes were normally expressed in eggs with the correct number of chromosomes.

“The identification of these [genes](#) in cumulus cells can serve as a novel, non-invasive marker to identify abnormal oocytes and thus ultimately improve [IVF](#) success rates,” said Patrizio, professor in the Department of Obstetrics, Gynecology & Reproductive Sciences at Yale. “We can use [cumulus cells](#) surrounding the eggs to gain insight into the health of an egg. These cells are now able to inform us about the chromosomal makeup of an egg. This can help us know if it is the ‘right egg’ to be fertilized and produce a baby.”

“This finding opens up the possibility of a safe, effective, and inexpensive way of identifying healthy eggs, potentially lowering the risks of miscarriage and Down syndrome,” said Wells. “By conducting these tests before eggs are fertilized, ethical concerns about analysis of human embryos are avoided.”

Other authors on the study include Elpida Fragouli, Amy E. Lager, and Umit A. Kayisli.

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More information: *Human Reproduction*, [doi: 10.1093/humrep/des170](https://doi.org/10.1093/humrep/des170)

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