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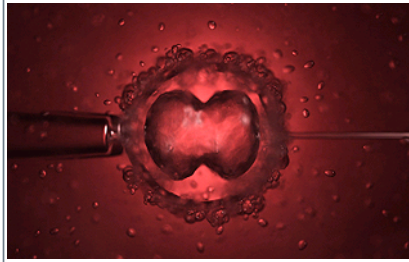
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Identifying the Metabolism of a Healthy Embryo Could Improve Infertility Treatment

Published: October 21, 2009



New Haven, Conn. — Embryos that are most likely to result in a pregnancy are crucial to the success of in vitro fertilization (IVF) but are difficult to identify. Researchers at Yale School of Medicine, led by [Emre Seli, M.D.](#), are developing a fast, non-invasive test to help assess embryo viability for IVF.

Seli, associate professor in the Department of Obstetrics, Gynecology & Reproductive Sciences at Yale, will present new embryo

selection findings at the American Society for Reproductive Medicine (ASRM) meeting held in Atlanta, Georgia from October 17 to 21.

Women undergoing infertility treatment with IVF are hormonally stimulated to produce multiple eggs, which are then fertilized in the lab. In most cases, multiple embryos are generated and cultured. Selecting embryos for implantation is currently highly subjective.

"It's a guessing game that can end in IVF failure or multiple pregnancies," said Seli. "Our goal is to find a way to pinpoint the embryos with the best chance of success, so that we can transfer fewer embryos and cut down on the possibility of multiple pregnancies without reducing the pregnancy rate."

To detect the difference between a viable and non-viable embryo, Seli and his team have studied the metabolomic profile of spent embryo cultures. A metabolomic profile is the unique chemical fingerprint that results from the metabolic activity of embryos in culture. The team previously found that metabolomic profiling could give an instant snapshot of the physiology of a cell. This non-invasive approach may provide a useful adjunct to the current embryo grading systems based on the structure of the embryo and the rate at which the embryo divides.

Building on this groundbreaking finding, Seli and his team have found that a viability score generated by non-invasive assessment of embryo culture media using metabolomics affected pregnancy outcomes in women treated in four different centers in Europe and Australia. This study—performed in collaboration with Molecular Biometrics, Inc. and co-authored by Denny Sakkas, Lucy Botros, Marc Henson and Kevin Judge—will be presented at the ASRM meeting.

"These findings have important implications for the more than 125,000 IVF cycles performed yearly in the United States," said Seli. "The high multiple pregnancy rates associated with IVF have significant public health consequences, such as decreased survival and increased risk of lifelong disability associated with severe prematurity."

Seli will also receive the 2009 Ira and Ester Rosenwaks New Investigator Award on October 18. This prestigious award is given annually by ASRM and recognizes outstanding contributions to research in reproductive sciences by an investigator within the first 10 years of his/her career. The award recognizes Seli's work in infertility research, identifying novel genes and characterizing key aspects of the regulation of gene expression during early development.

Seli will be available to speak with members of the media on Tuesday, October 20 from 9:15 to 9:45 a.m. in Room C211 of the Georgia World Congress Center.

Abstracts #: P-491 and O-295

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