Novel Non-Invasive Biomarkers For Oocyte/Early Stage Embryo Competence

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BACKGROUND

Infertility affects about 10% of couples in the United States, and the cause of infertility in up to 30% of affected couples remains unexplained. In Vitro Fertilization (IVF) is the most commonly used Assisted Reproductive Technique to address the issue of infertility in couples; however, the low IVF success rates (30-40% for women aged 34 and younger, with decreased success rates for older women) reveals a need for methods to accurately predict IVF success. Current methods for predicting IVF success use pre-implantation genetic diagnosis or morphological assessment of oocytes. However, pre-implantation genetic diagnosis requires embryo biopsy and does not improve live-birth success rate. In addition, morphological assessment is subjective and unquantitative, and often fails to predict IVF success. Therefore, the development of new methods to predict oocyte competence that are non-invasive, quantitative, and accurate would represent a great advance in the field.

TECHNOLOGY DESCRIPTION

UCSF investigators have discovered novel oocyte proteins that can be used as biomarkers of oocyte competence. These biomarkers can be quantitatively measured in a way that is non-invasive and used to accurately predict oocyte fertilization success and subsequent viability (for background information, see Related Materials). The biomarkers may be adapted for the quantitative assessment of early-stage embryos. The investigators are currently validating the results using human oocyte samples.

ADVANTAGES

Analysis of these biomarkers can be used to assess oocyte/early stage embryo competence in a non-invasive manner.
Analysis is quantitative and objective. Analysis accurately predicts oocyte/early stage embryo competence.

APPLICATIONS

Provides a quantitative, objective assessment of oocyte/early stage embryo competence.
May potentially be used to select high-quality oocytes and/or early stage embryos to improve IVF success rates for humans.
May potentially be used to improve IVF technologies for the generation of laboratory animals used for research, or for the generation of farm animals.
May potentially be used as diagnostic tool for idiopathic (unexplained) infertility.

RELATED MATERIALS


INVENTOR INFORMATION

INVENTORS

- Conti, Marco

OTHER INFORMATION

KEYWORDS

In Vitro Fertilization (IVF), Infertility, Biomarkers

CATEGORIZED AS

- Biotechnology
- Health
- Medical
- Diagnostics
- Disease: Women’s Health

RELATED CASES

2011-120-0

INVENTOR INFORMATION

PATENT STATUS

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PARTNERSHIP OPPORTUNITIES

The investigators also welcome the opportunity to collaborate with industry partners.