IGENOMIX LAUNCHES NEW MITOCHONDRIAL BIOMARKER, INDICATOR OF EMBRYO VIABILITY

- **Mitochondrial DNA content in euploid embryos as an index of implantation potential.**
- **New biomarker will help IVF clinics to select euploid embryos with higher potential for implantation and therefore increase pregnancy rates.**

VALENCIA (SPAIN), 16 FEBRUARY 2015

Mitochondrial DNA content is an indicator of the energetic status of the embryo. By selecting those embryos with the best Mitochondrial Score (Ms), implantation rate for PGS can be improved. The objective is to provide a new biomarker that helps IVF clinics to select the euploid embryos with higher potential for implantation and therefore increase pregnancy rates.

It is well established that energy is an important component of embryo viability. At iGenomix we have carried out a study to determine whether mtDNA copy number in euploid embryos could be considered as an index to understand embryo viability and its impact on implantation and pregnancy potential.

Our data from single euploid embryo transfers and mtDNA analyzed on day-3 embryos and blastocysts as well as in traceable euploid double embryo transfers support the efficiency of this novel biomarker. Our studies indicate that mtDNA copy number in the embryo is not a direct indicator of energetic capability but rather an index of energetic stress, which can be potentially used to predict their implantation potential.

The clinical translation of this work is the integration of the mtDNA copy number to the routine genetic analysis performed in our PGS analysis, now by aCGH and in the next months by NGS, adding a mitochondrial score of embryo implantation ability in euploid embryos to be considered in addition to the routine morphological classification. Therefore, we have taken a step forward by proposing a mitochondrial score (Ms) based on the number of relative mtDNA copies that would be linked to embryo viability and implantation potential.

Our biomarker is in agreement with other biological systems, which indicate that mitochondrial dysfunction is often associated with substantial mitochondrial hyperproliferation. Therefore, in an early embryo, the pathogenic outcome of “mitochondrial distress” is a marked mitochondrial proliferation. This mitochondrial proliferation results in an increased mtDNA copy number. This means that early embryos with higher mtDNA copy number would be indicative of a metabolic stress. As a consequence, embryos with metabolic stress are weaker and thus they have a reduced implantation potential.

(Scientific paper has been sent for publication in Fertility and Sterility®)

More information

IGENOMIX: +34 963 90 53 10

Marisún Silvestre: marisun.silvestre@igenomix.com

Paula Miquel: paula.miquel@igenomix.com