

igenomix χ

 **PGS** | Preimplantation Genetic
Screening for chromosomal
abnormalities
by NGS

Now with added
advantage of **MitoScore χ**
developed by igenomix

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Screening for chromosomal
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Have a successful pregnancy and
a healthy baby by selecting
chromosomally normal embryos

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PIONEERS IN REPRODUCTIVE GENETICS

❖ Improve the chances of reproductive success with Next-Generation Sequencing for PGS



- Indications to perform PGS
- 1 Advanced maternal age
 - 2 Recurrent miscarriage
 - 3 Previous aneuploid conception
 - 4 Implantation failure
 - 5 Male factor infertility

❖ Employing PGS for aneuploidy screening in IVF can double ongoing pregnancy rates



❖ What is PGS by NGS?

high accuracy rate of **99%**

Our technology, Next-Generation Sequencing, allows us to analyze all 24 chromosome types.

Chromosomal abnormalities are detected prior to embryo transfer to enable informed decisions and increase pregnancy success

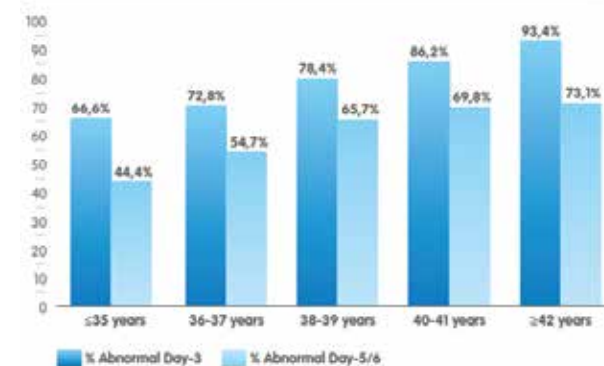
NGS is the digital, sequence-based alternative to analog techniques for DNA analysis.

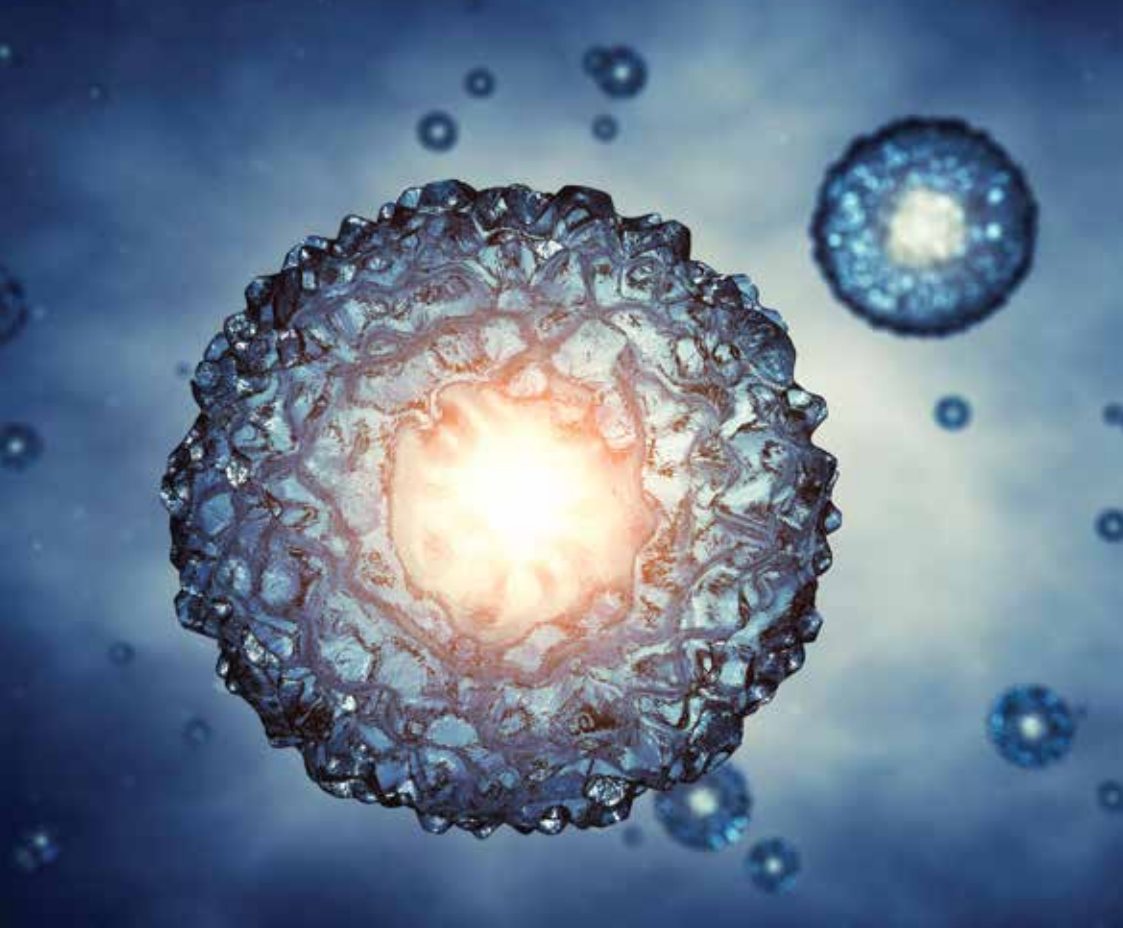
❖ NGS provides a new approach to PGS with advantages including:

- Validated NGS protocol comparing the results with Array CGH technology, which will remain as a back-up technology in our labs.
- High flexibility, scalability and best cost-efficiency. NGS enables the screening of 2 to 24 samples per analysis, minimizing the need to batch embryos and significantly driving down the cost per sample.
- New diagnostic possibilities. NGS allows for embryo screening together with mitochondrial DNA screening (MitoScore).
- Robust technology detects whole chromosome aneuploidies, mosaicism and segmental aneuploidies.
- Faster technology allows Fresh Embryo Transfer (D5/D6).

❖ Data summary of PGS cycles performed at Igenomix

Frequency of abnormal embryos according to maternal age

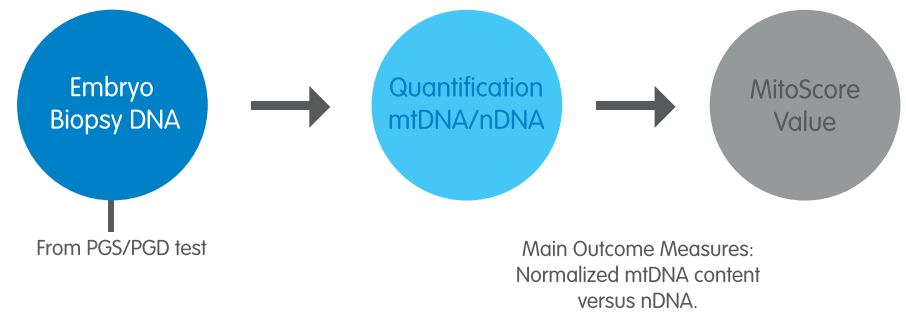




Mitochondria and mtDNA

- Mitochondria are structures within cells that play an essential role in energy production.
- Although most DNA is located in chromosomes within the nucleus, mitochondria have their own DNA. This genetic material is known as mitochondrial DNA or mtDNA.
- Mitochondrial DNA content in an embryo is an index of energetic stress, which can be used to predict its implantation potential. Our studies indicate that an increase in the mitochondrial DNA in the embryo is indicative of an insufficient level of energy and a low implantation potential.

MitoScore Process

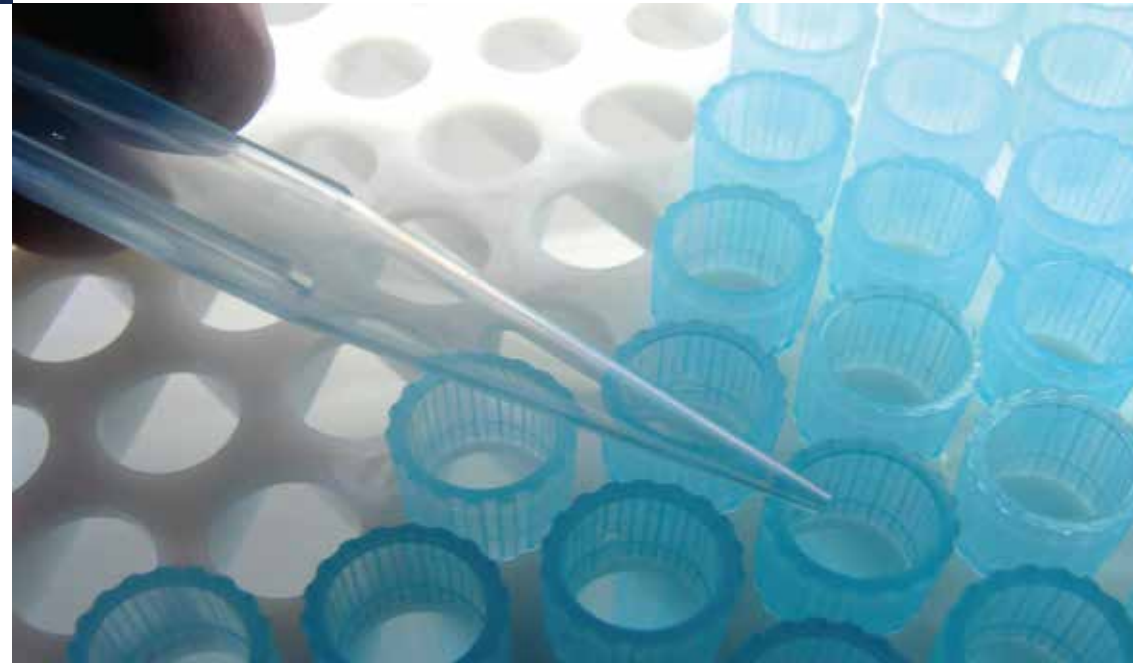


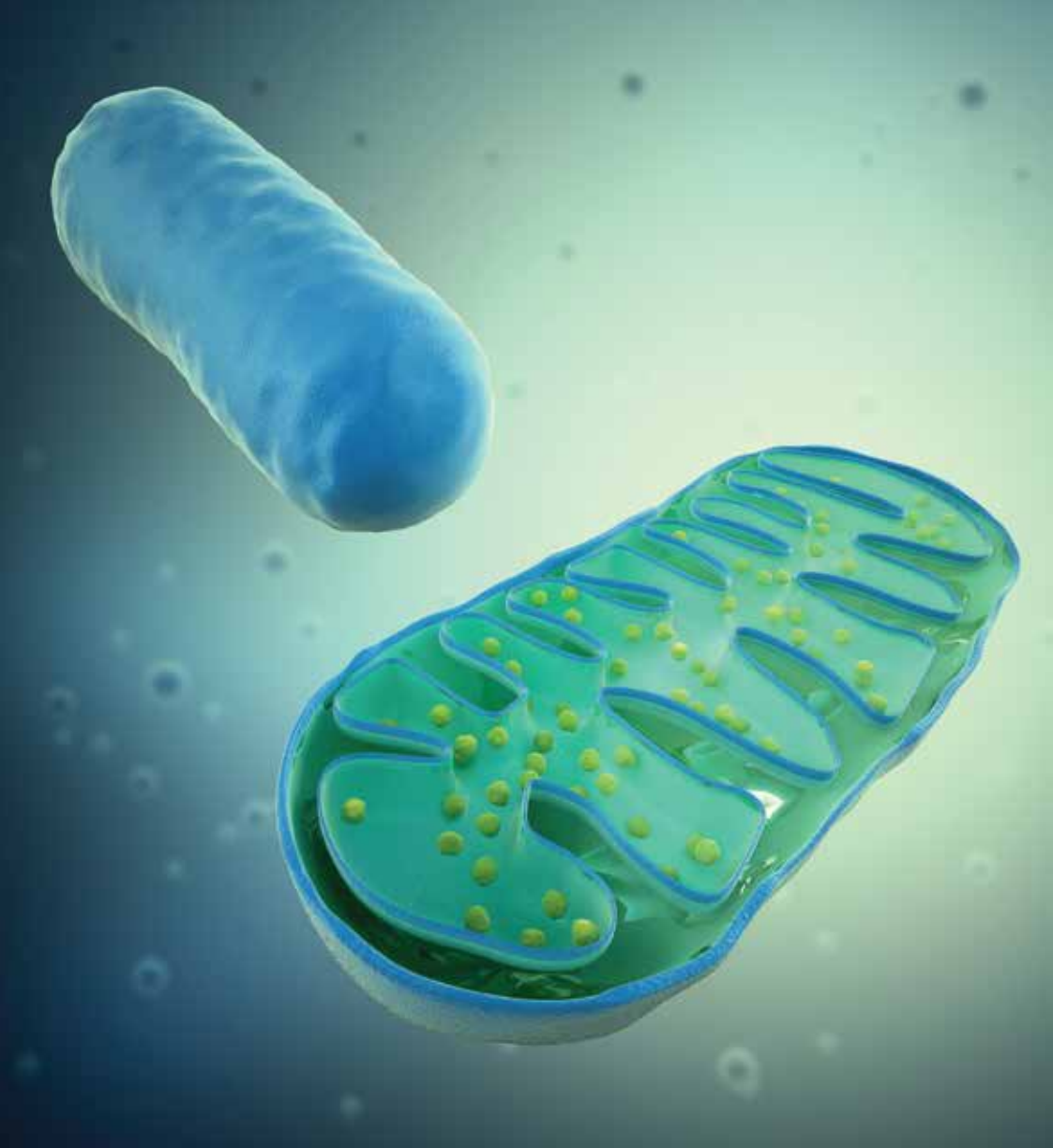
What is MitoScore?

- MitoScore is a mitochondrial biomarker developed by Igenomix which gives us an indicator of the energy status of an embryo. MitoScore allows us to select those embryos with the greatest probabilities for implantation, therefore more likely to result in a viable pregnancy through IVF/ PGS. (Diez-Juan et al. 2015)
- The clinical translation of this work is the integration of the mtDNA copy number (MitoScore) to the routine genetic analysis performed in our PGS analysis.

Mitochondrial DNA content as a viability indicator in human euploid embryos

- An increased amount of mtDNA in euploid embryos is related to poor implantation potential.
- MitoScore will help IVF clinics to select the euploid embryos with higher implantation potential.

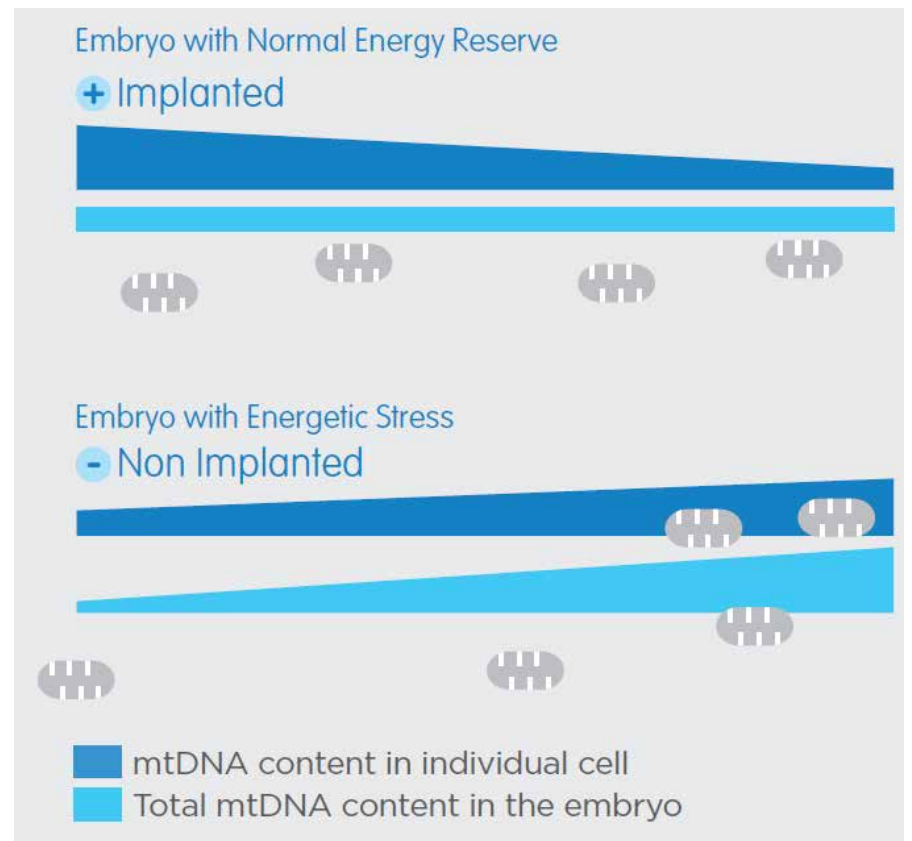




What is MitoScore useful for?

MitoScore will help IVF clinics to select the euploid embryos with higher potential for implantation and therefore increase pregnancy rates for PGS.

- It provides a mitochondrial score of embryo implantation ability in euploid embryos, to be considered in addition to the routine morphological classification.
- MitoScore provides this information very soon, since the mitochondrial DNA measurement can be obtained both at day 3 or day 5 of embryonic development.



Advantages

- Increased implantation and pregnancy rates in IVF.
- Reduction of the number of multiple gestations.
- Measurement obtained at an early stage: at day 3 or day 5 of embryonic development.
- Additional information on embryo health by complementing morphological observations.

Request your test now



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