

## MitoScore Test Results

Patient Information		Sample Information		Clinic Information	
MRN/external ref.	XYZ001	Sample type	DNA	Center	
Patient name		Date Received		Referral physician	
Date of birth		Report date		Clinical info.	Patient
		Clinical indication	AMA, Repetitive implantation failure		

### METHODS

The test is conducted by using the Ion ReproSeq™ PGS Kit (Next Generation Sequencing) for 24 chromosomes aneuploidy screening (Thermo Fisher Scientific, USA). The kit/assay is performed on the Ion Chef™ and Ion S5 System instruments (Thermo Fisher Scientific, Inc, MA, USA). Data analysis is performed using the Ion Reporter software.

### RESULTS

Embryo	Specimen	Day of biopsy	Mitoscore Value	MitoScore Ranking *
RG1	Trophectoderm	D5	26.88	1
RG7	Trophectoderm	D6	36.39	2

\*Transfer policy: In euploid embryos with proper morphology, implantation could be improved using MitoScore. The last column show the suggested transfer priority order according to the MitoScore value, that should be considered only after taking into account aneuploidy screening result and embryo morphology. Until the MitoScore RCT is done, the priority for the transfer should be always the morphology after a chromosomally normal embryo.

### DATA INTERPRETATION

An increased amount of mitochondrial DNA in euploid embryos is related to poor implantation potential and may be indicative of reduced energetic reserve during oocyte maturation. The mitochondrial score "MitoScore" is a value that represents the normalized mitochondrial DNA content in euploid embryos and indicates the total mitochondrial DNA content in the sample. Data from single euploid embryo transfers and mitochondrial DNA analyzed support the hypothesis that mitochondrial DNA copy number in the embryo is not a direct indicator of energetic capability, rather it is an index of energetic stress and thus it can potentially be used to predict their implantation capacity (Diez-Juan A, Rubio C et al. 2015).

Healthy embryos split the total amount of mitochondrial DNA equally among all cells present during division. In embryos experiencing energetic stress, the mitochondrial biogenesis increases during early development compensating the mitochondrial DNA reduction caused by cell division. Thus, increased mitochondrial DNA in euploid embryos is an indication of reduced amount of energetic reserve during oocyte maturation that is reflected in reduced implantation rate.

Nowadays, the NGS technique is used for the quantification of mitochondrial DNA. The value obtained and the algorithm designed and developed by Igenomix are the version 1 of this test. Given the evolution of the NGS and subsequent bioinformatic development, the predictive value of this test is considered experimental, and will be periodically adjusted by enhancements and updates, as capture of the mitochondrial DNA sequence improves. The optimizations of the test are and will be validated in a prospective, randomized, multicenter study that will determine the clinical value and its application as an independent test. It should be noted that small variations in the value of MitoScore are not relevant in the transfer priority.



Sample name, PhD

Biologist



Sample name, PhD

Laboratory Manager

