

MOLECULAR KARYOTYPE ANALYSIS OF CELLS EXCLUDED DURING MORULA COMPACTION PROCESS

Kaimonov, Vladimir¹; Musatova, Elizaveta¹; Libman, Natalia - Presenting Author¹; Bikanov, Roman¹; Guseva, Margarita¹; Khryapenkova, Tatiana²; Shmitova, Natalia³; Burdina, Natalia⁴; Pomerantseva, Ekaterina¹; Gusareva, Anna⁵

¹Center of Genetics and Reproductive Medicine «Genetico», ²GMS IVF Clinic- Family Planning Center, ³Center of reproduction, ⁴Center for reproductive medicine and genetics "Nova Clinic", ⁵O.L.G.A. Fertility Clinic

Abstract Body

Morula compaction is an important process of preimplantation embryo development. Compaction of morula may be incomplete and some cells can be excluded. The aim of this study was to compare the chromosome status of trophectoderm cells and excluded cells.

The materials for this study were 8 samples of trophectoderm (TE) biopsy and 8 excluded cells (EC). The biopsy of trophectoderm was performed for PGT-A on the 5-6th day of embryo development. Each embryo included in the study had excluded cells. PGT-A was performed by NGS (Veriseq, Illumina) and aCGH (Cytochip, Illumina).

The results are shown in the table. It was observed that 4 out of 8 TE samples had a balanced molecular karyotype. And in the other 4 TE samples we observed aneuploidies of one or more chromosomes. The excluded cells from the embryos with aneuploid trophectoderm samples had an abnormal (in the main chaotic) molecular karyotype. It is important to note that reciprocal aneuploidy of chromosome 22 was observed in sample №6. The TE samples with a balanced molecular karyotype corresponded to EC samples with chaotic chromosome status.

The excluded cells forming may be a process of elimination of cells with an abnormal karyotype. The presence of excluded cells may be associated with a normal molecular karyotype of trophectoderm cells. It is important not to take of excluded cells in the biopsy sample for PGT-A because it may affect the result.

№ TE	PGT-A results	№ EC	Results of EC analysis
TE1	arr(15)x3	EC1	arr(1-22,X,Y)cx
TE2	arr(12)x3	EC2	arr(20)x1,(22)x2
TE3	seq(1-22)x2,(X,Y)x1	EC3	arr(1-22,X,Y)cx
TE4	arr(1-22,X)x2	EC4	arr(1-22,X)cx
TE5	seq(1-22)x2,(X,Y)x1	EC5	arr(1-22,X)cx
TE6	seq(5)x1,(22)x3	EC6	arr(cth)5,(20)x1,(22)x1
TE7	seq(X)x1,(Y)x0	EC7	arr(1-22,X)cx
TE8	seq(1-22,X)x2	EC8	arr(1-22,X)cx