CHAPTER 20

ENDOMETRIAL RECEPTIVITY ARRAY (ERA)

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Introduction

The number of couples who diagnosed with infertility improves nowadays. The cause of infertility can be pathological or physiological because human implantation and pregnancy is very complex process. In vitro fertilization (IVF) is one of the preferred medical techniques for getting pregnant. In this technique, fertilization takes place in vitro environment after that fertilized embryo transferred to uterus. Technology and achievement of IVF is improving in parallel with medical technology. However, there is steel some restrictive criteria that effecting successful human implantation. For successful implantation;

- Healthy embryo
- Receptive endometrium
- Synchronized molecular communication between both endometrium and embryo.
- Prevention from host immune system is necessary.

What is the Endometrium?

Endometrium is a thin layer that laying down uterus and this layer composed of epithelial cells. It is highly complex and dynamic tissue and show different molecular, morphological, histological, biochemical and physiological alterations under the endocrine and paracrine signals during the menstrual cycle. Main determinant of the proliferative phase is estrogen and this sex steroid controls many alterations. Estrogen provides proliferation of stromal cells and glands as well as elongation of the spiral arteries. Receptive endometrium reflects allowing to implantation of blastocyst to endometrium. Embryo cannot implant to the endometrium in another phase. Endometrium acquires receptive phenotype at 19-20 day of menstrual cycle and this period called as window of implantation and proceeds 4-5 days. Serum progesterone level reaches to its peak during this short phase (1). In this receptive phase, endometrium undergoes some cytoskeletal, biochemical and morphological changes to become competitive for embryo implantation. It is very important to dating receptive endometrium during the IVF applications.

LRRC1	Leucine-rich repeat containing 1	−3.23
SORDbbcc	Sorbitol dehydrogenase	−3.21
EPHB3cc	EPH receptor B3	−3.20
TMSL8cc	Thymosin-like 8	−3.20
RASSF2cc	Ras association (RalGDS/AF-6) domain family 2, transcript variant 1	−3.19
TTC21B	mRNA for KIAA1992 protein (AB082523)	−3.17
OPRK1	Opioid receptor, kappa 1	−3.17
TMEM16Acc	Transmembrane protein 16A	−3.13
CRABP2cc	Cellular retinoic acid-binding protein 2	−3.10
FLJ10719cc	Hypothetical protein FLJ10719	−3.10
PRKCQcc	Protein kinase C, theta	−3.08
CDC2cc	Cell division cycle 2, G1 to S and G2 to M, transcript variant 1	−3.06
BUB1Bcc	BUB1 budding uninhibited by benzimidazoles 1 homologue beta (yeast)	−3.05
STEAP4	STEAP family member 4	−3.04
HEY1	Hairy/enhancer-of-split related with YRPW motif 1	−3.03

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