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## Recent Progress of IVF-ET Program Using Human Immature Oocytes

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*In vitro* maturation program (IVM) has developed a culture technique for supporting the growth and maturation of immature oocytes since late of 1980s and has become increasingly important in ART methods. The establishment of an IVM program can yield many advantages. Patients suffering from congenital or postnatal reproductive disorders, such as premature ovarian failure (POF) or polycystic ovarian syndrome (PCOS), can achieve pregnancies by transfer of viable embryos derived from IVM and *in vitro* fertilization (IVF) systems. Recent studies demonstrate that changes, occurred during growth and maturation to the M-II of immature oocytes, greatly affect further embryonic development and clinical outcome. Therefore, age, pathology, day of menstrual cycle, and cyclicity of the patients are important factors influencing growth of retrieved oocytes as well as number of recovered ones. In addition, follicle size, oocyte diameter, and hormonal environment affect cytoplasmic maturation of oocytes. Mechanisms and regulation of oocyte maturation might be elucidated by an *in vitro* culture system. Recently, the type of media and laboratory conditions, including numerous media, hormones, growth factors, energy substrates, protein sources, scavenging system, and meiosis activating sterols, have been considered to improve nuclear and cytoplasmic maturation during *in vitro* maturation. Furthermore, increasing oocyte viability by employing optimized IVM system would reduce ethical concerns about the disposal of retrieved oocytes with low developmental competence, and concerns about the abuse of the manipulation of human embryos.

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