

## Mini-Symposium on Blastocyst Transfer

# Preface

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Blastocyst transfer in humans was first attempted by Bolton (1989), and made a common practice by Gardner (1998). This technique was developed in Europe and the U.S. to prevent multiple pregnancies through selection and transfer of the best, most valuable single embryo. In Japan, blastocyst transfer is beginning to be used in IVF. In general, following fertilization, fertilized eggs are cultured for two to three days. By extending the length of culturing to 5 days, embryos with better morphology are selected and transferred in order to improve the rate of embryo implantation. The idea behind this extended culturing is that it will make poor-quality embryos exhibit abnormal morphology and thus makes it possible to use a microscope to distinguish and eliminate them. Today, embryos are cultured under conditions similar to those in an *in vivo* environment and, due to the recent advances in culture media, it is now possible to culture embryos for 5 to 6 days. However, not all factors related to the *in vivo* environment have been identified, and the formation of a blastocyst does not necessarily indicate the formation of a high-quality embryo. Furthermore, laboratory techniques and skills play an important role in the formation of blastocysts. Results of blastocyst transfer vary from institute to institute. While

some have achieved good results in blastocyst transfer, others have had unchanged results from what they had with conventional procedures. This may be attributable to the slight differences in the definition of indications for blastocyst transfer between Japan on the one hand and Europe and the U.S. on the other hand. There are many factors that contribute to clinical outcomes, such as the indications for blastocyst transfer, selection of culture media, quality control at laboratories, and morphological assessment criteria for high-quality embryos. Blastocyst transfer has been performed for more than a decade in animal husbandry, particularly with cows.

Numerous basic studies have been conducted on the genetic quality assessment of embryos, and on metabolism. In this minisymposium, two authors were asked to present the results of their research on blastocyst transfer in mammals in an attempt to find clues for the resolution of clinical issues. In addition, three clinical researchers were asked to discuss from their own standpoint the current state of blastocyst transfer, the problems involved with this technology, and possible solutions. Through these five reviews, readers will gain knowledge of all aspects of blastocyst transfer.