Topic: Preimplantation Genetic Screening

Title: KARYOLITE-BOBS™ FOR PREIMPLANTATION GENETIC SCREENING

**Pornwaratt Niyomrattanakit**, Pawonrat Patipipat, Ruechakorn Chantawee, Wararat Kanhakit, Sivadatch Chooduang, Orawee Thepmanee, Surapong Chowichian, Khwan Tangskulpakdee, Sakon Petchtananon, Usanee Jetsawangsri

*Department of Genetics Laboratory, Jetanin Institute for Assisted Reproduction, Thailand*

We reported here the use of new comprehensive chromosome screening (CCS) technology, KaryoLite-BoBs™, for preimplantation genetic screening (PGS). KaryoLite-BoBs™ is a rapid, cost-effective and high-throughput aneuploidy screening assay that can be performed on both single blastomere and trophectoderm cells up to 92 samples per batch. Aneuploidy status of the embryo is obtained by labeling the amplified embryonic genomic DNA with biotin and hybridizes the labeled DNA onto the polystyrene beads. Each bead, of the total of 91 beads representing all chromosomes, is coated with three BAC probes to increase hybridization robustness. Bound DNA is quantified by measuring fluorescence intensity after reporter binding and beads are scanned with Luminex. Aneusomy is detected by comparing the test sample with reference DNA samples using BoBsoft software. For both blastomere cell and trophectoderm cells, we have validated KaryoLite-BoBs™ for PGS in house and have used the test on 3,499 embryos (non-donor oocytes IVF cycle). Maternal age effects on aneuploidy rate were observed. Percent euploid identified by KaryoLite-BoBs™ were comparable with other CCS technologies, ranging from 50% to 13% in cleavage-stage and from 64% to 26% in blastocyst stage, in women age 35 years and 40-42 years, respectively. IVF outcome in terms of pregnancy rate and implantation rate will be discussed.