



HKSH Pioneers in Fertility Treatment Introducing Asia's first EmbryoScope with Time-Lapse Imaging System For Optimal Incubation and Better Embryo Selection

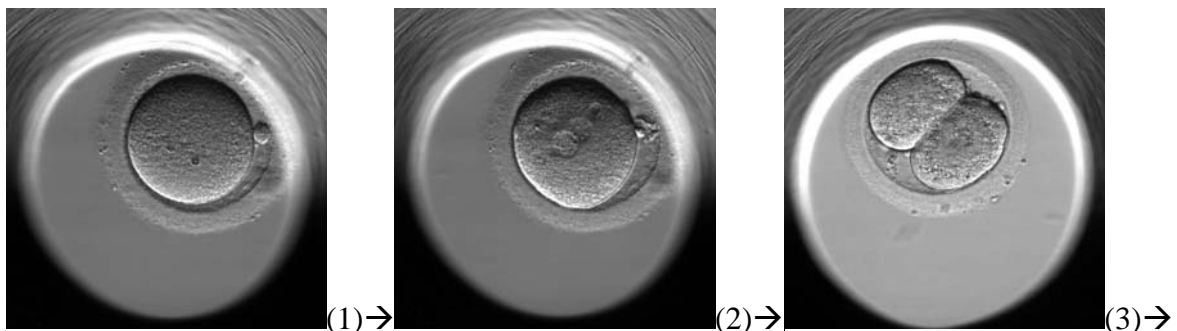
(30 October, 2012 – Hong Kong) Assisted the birth of Hong Kong's first test-tube baby in 1986, Hong Kong Sanatorium & Hospital (HKSH) continues its mission to introduce the latest and advanced technology in fertility treatment into Hong Kong. In July 2012, HKSH installed Asia's first EmbryoScope, a revolutionary incubator with a built-in microscope and camera system which allows embryos to be continuously observed through an automated time-lapse imaging system from conception until the time of transfer.

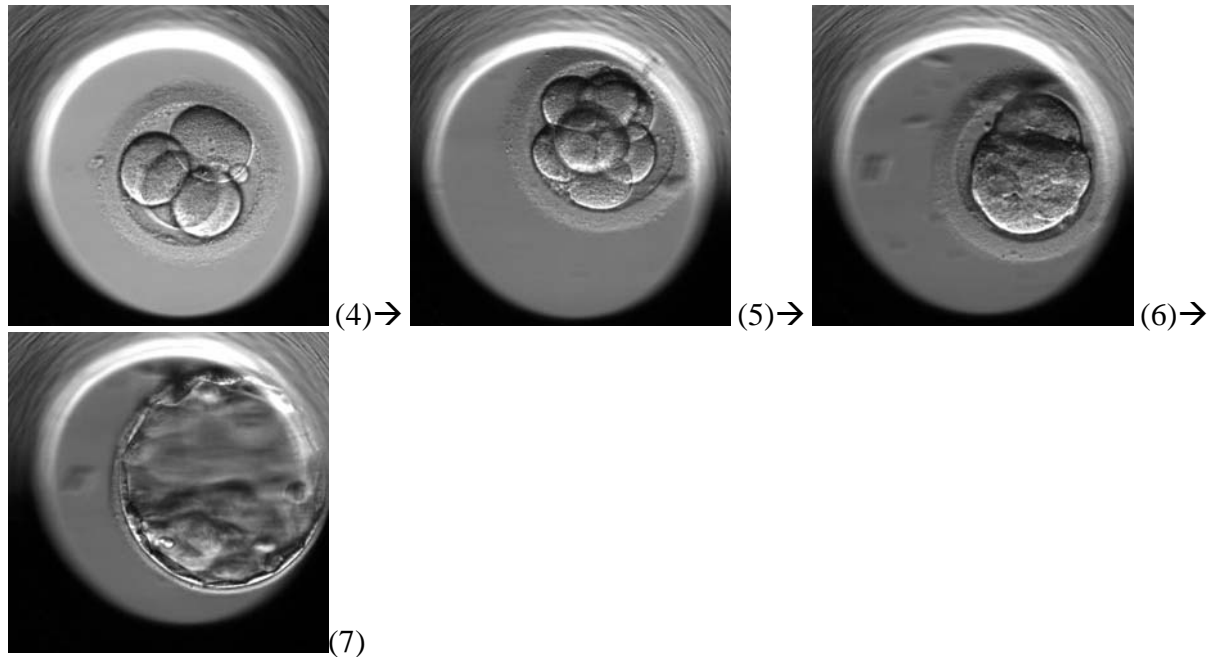
“HKSH is proud of the commitment of IVF Centre in keeping abreast with proven advancements in fertility and introducing the latest technology into Hong Kong to assist couples with fertility needs,” said Dr. Joseph Chan, Deputy Medical Superintendent and Head of Department of Women's Health and Obstetrics of HKSH. “Soon after EmbryoScope obtained FDA clearance in January 2012 followed by CE approval in 2009, the hospital management has no hesitation to support the Centre's recommendation to introduce EmbryoScope as it will bring benefit to the people in need.”

Incubator-cum-Microscopic Imaging System for Round-the-clock Monitoring of the Growing Embryo

Traditionally, fertilisation of the eggs are performed either through insemination with sperm in a culture dish in an incubator or through intra-cytoplasm sperm injection (ICSI) in the laboratory by embryologists. The fertilised eggs or embryos are placed in an incubator with strictly monitored settings of temperature, humidity, pH value, etc., resembling nature's embryo culture laboratory (Fallopian tube) with a purpose-built in vitro laboratory. The embryos are monitored once a day to ascertain that they are dividing (cleaving) normally. The embryo monitoring involves taking the embryos out from an incubator, examining with a microscope to take a 'snapshot' of the developing embryos. The resulting embryo(s) is replaced back into the womb in Day 2, Day 3 or Day 5 depending on the quality of the embryo(s).

Embryonic development:





- (1) A matured egg
- (2) A fertilised egg (After about 20 hours)
- (3) 2-cell embryo (Day 1 after fertilisation)
- (4) 4-cell embryo (Day 2 after fertilisation)
- (5) 6 or 8-cell embryo (Day 3 after fertilisation)
- (6) Morula (Day 4 after fertilisation)
- (7) Blastocyst (Day 5 after fertilisation)

“Every time you take an embryo out of a standard incubator you are disturbing them from the cultured environment with optimal gas and temperature conditions. Now with the EmbryoScope, which is an incubator as well as an imaging system, an image of the embryo is taken every 20 minutes automatically by the built-in camera to provide abundant information in a non-invasive way,” said Dr. Milton Leong, Director of IVF Centre of HKSH. “The time-lapse imaging system is a great help to enable continuous assessment of embryonic development and better selection of embryos for implantation.” The EmbryoScope allows incubation of up to 72 individual embryos in six sterile disposable slides each with a capacity of 12 embryos.

Over 3,000 images for Better Evaluation and Identification of Embryos

Embryonic development is dynamic. Snapshots once a day using the traditional method could only provide limited information for selecting embryos. Every doubling time has a meaning. There are various parameters in selecting the embryos for implantation, such as timing and synchrony of cell division, cell morphology by detailed observation of the nuclei of cells, the dimensions of ensuing daughter cell, etc. “Let me take a recent patient case as an example. An embryo did not cleave on Day 1 and was divided into a 6-cell embryo in Day 2. If monitored once a day, the 6-cell embryo could be considered morphologically normal. However, when we played back the recording, the embryo had no sign of cleaving in the first



30 hours. At the 40-hour timestamp, the embryo was divided into a 3-cell embryo and in a couple of minutes split into 6 cells. Such cell division process was beyond the normal range of embryonic development and the embryo was not suitable for implantation,” Dr. Leong explained.

Now EmbryoScope provides a time-lapse recording of the growing embryos, where images of each embryo are automatically recorded at preset time intervals which records up to 3,500 images per embryo during culture. The extra information from the EmbryoScope enables the identification of the best embryos with greater confidence. It also allows collective review and decision among doctors and embryologists in the selection process.

Taking Fertility Treatment into the Future

HKSH’s IVF Centre oversees 2,000 cycles a year, in which 500-700 are Frozen Embryo Transfer (FET). Since July, the embryos of 86 couples have been cultured in EmbryoScope, and 39 pregnancies have been achieved. The rate is about 45.3 %, which is slightly better as compared to our Centre having achieved an average of 39% in the last 4 years using the standard traditional method.

“There are reports of increased pregnancy success rates with the use of EmbryoScope, but the impact of using EmbryoScope on pregnancy rate is yet to be conclusive. At any rate, this innovative technology is valuable as the springboard for the next leap in fertility treatment,” remarked Dr. Leong. “We now have access to a big database of results from over 100 centres all over the world that use the EmbryoScope. With the bulk of information about embryonic development, training and research will be further enabled to explore the correlations of certain characteristics of embryonic development and better success rates.”

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About Hong Kong Sanatorium & Hospital

Hong Kong Sanatorium & Hospital is one of the leading private hospitals in Hong Kong. With the motto “Quality in Service Excellence in Care”, the Hospital is committed to serving the public as well as promoting medical education and research.

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Photos

1. HKSH introducing Asia's first EmbryoScope. The EmbryoScope allows incubation of up to 72 individual embryos in six sterile disposable slides each with a capacity of 12 embryos.



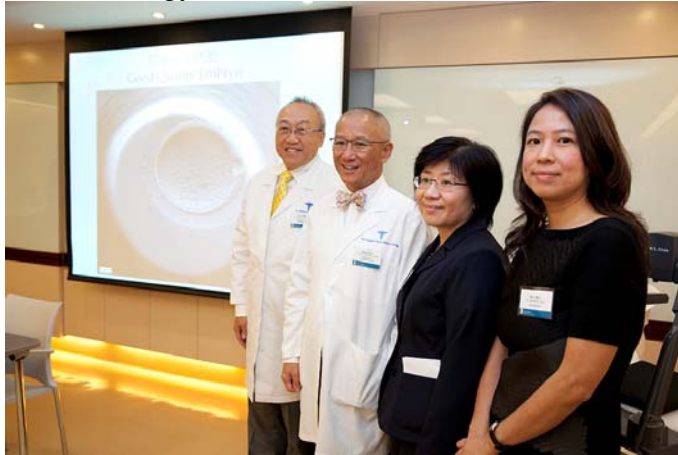
2. "It is our aim that introducing EmbryoScope into Hong Kong would benefit more couples with fertility needs," said Dr. Joseph Chan (left), Deputy Medical Superintendent and Head of Department of Women's Health and Obstetrics of HKSH.



3. Dr. Milton Leong, Director of IVF Centre of HKSH, talked about the significance of EmbryoScope



4. (From left) Dr. Milton Leong, Director of IVF Centre of HKSH , Dr. Joseph Chan, Deputy Medical Superintendent and Head of Department of Women's Health and Obstetrics of HKSH, Dr. Tang Oi Shan, Specialist in Obstetrics and Gynaecology of HKSH and Dr. Lok Hung, Ingrid, Specialist in Obstetrics and Gynaecology of HKSH introduced the EmbryoScope and the latest development of the assisted reproduction technology.



5. EmbryoScope, which is an incubator as well as an imaging system, takes an image of the embryo every 20 minutes automatically by the built-in camera to provide abundant information in a non-invasive way.



6. Traditionally, the embryos are monitored once a day to ascertain that they are dividing (cleaving) normally. The embryo monitoring involves taking the embryos out from an incubator, examining with a microscope to take a 'snapshot' of the developing embryos.



7. Dr. Milton Leong, Director of IVF Centre of HKSH and the team of in vitro laboratory



8. HKSH's IVF Centre oversees around 2,000 cycles a year

