



What more can we do to understand the process  
and improve our results?

## REPRODUCTIVE MEDICINE AND BEYOND

### The 4th IVI International Congress

VALENCIA • SPAIN • APRIL 7 - 9, 2011



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### A glimpse of speakers' presentations...



**Bernhard Horsthemke**  
Chromatin and RNA-based epigenetic inheritance

Assisted reproduction is associated with an increased risk for pregnancy complications, low birth weight, congenital malformations and possibly imprinting diseases. The finding of aberrant epigenetic patterns in some of the affected children suggests that gamete quality and reproductive events can affect the embryo's developmental trajectory in the epigenetic landscape. While most the epigenetic studies have focussed on DNA methylation patterns, it is also important to consider other epigenetic systems such as RNA stores.



**N.S. Macklon**  
Secretomics of endometrial fluid for non-invasive assessment of endometrial receptivity

The secretions produced by the endometrium provide an accessible and potentially non-invasive window on the intra-uterine environment. While much work has been done over the past 30 years to elucidate the nature, constituents and function of endometrial secretions, recent development of techniques capable of quantifying multiple factors at very

low concentrations considerable progress in our understanding of the role and significance of endometrial secretions. This material is now known to contain a number of mediators which modulate endometrial receptivity, and which may be involved in maintenance and nurturing of ascending spermatozoa and the preimplantation embryo. However, many questions remain as to the functions of this fluid, which represents the first uterine component which the preimplantation embryo interacts.



**Marcos Meseguer**

**The use of oxygen consumption to select the best oocytes and embryos**

The ability to identify the most viable oocyte or embryo is of fundamental importance and there is a need for more accurate selection in human assisted reproduction. Nevertheless oocyte and embryo quality evaluation is based on the morphology and kinetics linked to arbitrary selected times. These primary procedures to select gametes and embryos are subjective, limited and needs external manipulation and it is quite possible that a large proportion of the failed implantations must be ascribed to the embryo. In consequence novel procedures are necessary to improve assessment of oocyte and embryo quality, and this is particularly important in IVF treatments to achieve a successful pregnancy. The technological advances in hi-tech research have enabled non-invasive determination of metabolic status of the embryo. Oxygen consumption measurements from oocytes and embryos together with the assessment of the kinetics of embryo division could be applied routinely in the clinical embryology laboratory in order to assess quality, replacing the classical microscope based methods to select embryos.



**Carmen Rubio**

**Does PGS have a role? Pros and cons**

Preimplantation Genetic Screening (PGS) is offered in many IVF centres to improve the reproductive outcome in advanced maternal age patients in order to improve pregnancy outcome and decrease the risk of a trisomic pregnancy. Despite the controversy in the last three years, we believe that there is still a place for PGS in these patients, considering some important methodological aspects, such as: patients' selection; embryo biopsy and culture and the genetic analysis including CGH arrays.



**Bart CJM Fauser**

**Ovarian stimulation for IVF; The optimal balance between too much and too little.**

Mild IVF may involve mild ovarian stimulation, mild transfer policies (i.e. single embryo transfer in selected patients), or both. The tendency to go for fewer high quality embryos may go hand in hand with mild stimulation. Both strategies may result in a reduction in the pregnancy rate per cycle in case fresh transfer are considered. Only when cryopreserved embryo transfer cycles are included in success rates, overall pregnancy rates become comparable in IVF units with good laboratory performance. The aim of milder forms of ovarian stimulation is to render stimulation less complex, less time consuming and less costly, while improving patient acceptability by reducing side effects and chances for complications. Insufficient access to IVF treatment due to high cost and very few countries where IVF is reimbursed is the biggest threat to global IVF today. However, mild ovarian stimulation protocols do not work for all patients.

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