

fertility matters

Monash IVF news update

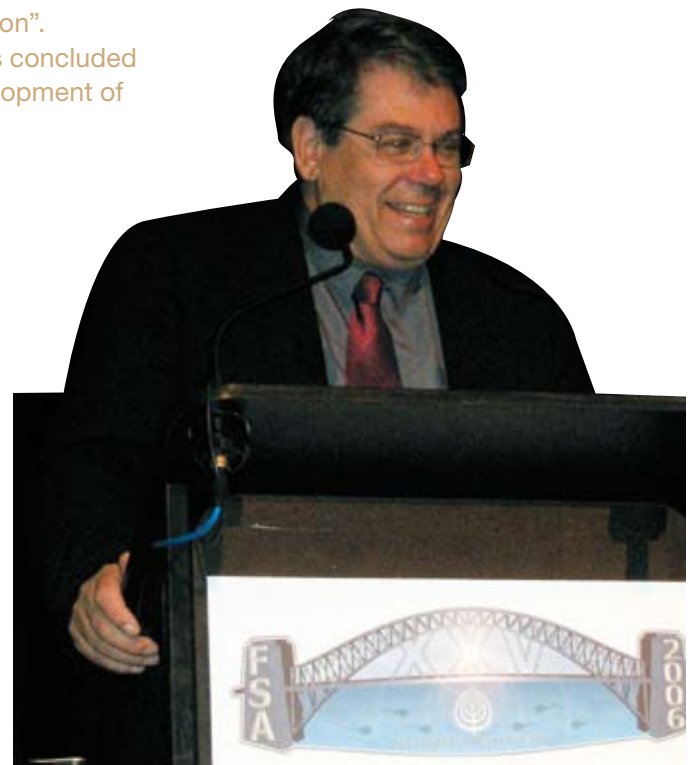
Monash IVF and FSA Celebrate 25th Annual Scientific Meeting

The Fertility Society Of Australia (FSA) held its annual conference in Sydney in October and celebrated 25 years. Monash IVF Scientific Director, Professor Alan Trounson opened the conference, delivering the Ian Johnstone Memorial Lecture: "25 years of Progress in Human Reproduction". This fascinating recount of a quarter of a century of milestones concluded with future possibilities for this area of science, including development of cell lines in vitro for:

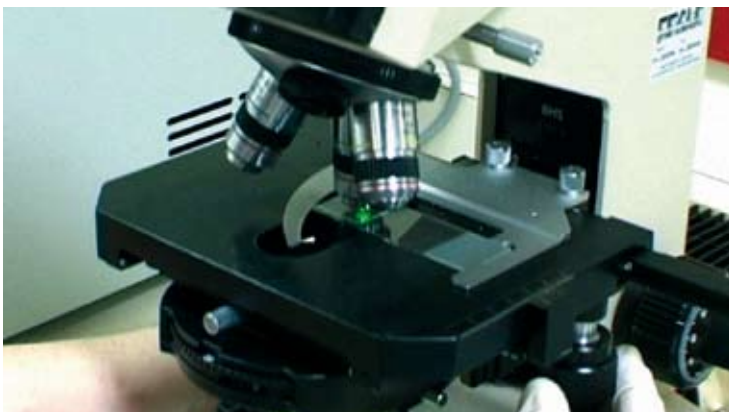
- Pharmaceutical studies and drug development (replacing animal testing)
- Eradication of mitochondrial based diseases in a single generation
- Generation of red blood cells for blood banking

The issue of "therapeutic cloning" has been a political hot potato in recent years. The vote in Federal Parliament in December to allow it will see some of these visions becoming a reality.

There was also considerable focus on causes of male infertility at the conference with several groups reporting increased DNA damage in sperm from oxidative stress. This damage may come from lifestyle factors, including diet, and may also increase with the age of the male partner. There was some speculation on how to test and treat this damage but much of the technology is not yet ready for use clinically (see page 3).



Monash IVF also celebrated with a dinner honouring their "Founding Father", Professor Carl Wood. Our young scientists won 2 of the 4 prizes at the conference.



FSA Chairperson and Director of Laboratory Services for Monash IVF, Dr Adrienne Pope presented the ESHRE exchange award to Dr Elissa Osborne for her paper "**Array-CGH Detection of Yq Microdeletions Associated with Male Infertility**" and the Organon award for best poster presentation to Rachael Kasap for her poster "**Temperature Fluctuations During IVF Prodedures**". Dr Osborne will now travel to Lyon in France next year to present at the European Society of Human Reproduction and Embryology (ESHRE) meeting. A summary of their papers is under the News section of this newsletter.

What's News in Fertility

Polycystic Ovaries and IVF

Many women diagnosed with PCO think the only way they can become pregnant is by IVF. Fortunately, this is a misconception. Recent studies indicate that about one in four or five women in the community have polycystic ovaries, many with no symptoms and no difficulty conceiving. The most common problem associated with PCO is anovulation. This is usually remedied by ovulation induction (OI) using clomiphene, metformin, ovarian cautery or FSH injections. IVF is only required in a minority of PCO patients, either because there is a complicating factor such as tubal damage, a subnormal semen profile in the male partner or after several cycles of successful OI have not resulted in a pregnancy.

Rubella, measles and Mumps immunisation

All women who do not have confirmed immunity should be immunised before pregnancy. Pregnancy should then be avoided for 1 month, even though the MMR vaccine has not been linked to congenital malformations or uterine infection (Fertil Steril 2005; 86 (Suppl 4) P28-30)

SCSA test canned by ASRM

The American Society of Reproductive Medicine (ASRM) has released a number of Practice Committee Reports. The Committee concluded that "current methods of sperm DNA integrity testing (including SCSA) do not reliably predict treatment outcomes, and no treatment for abnormal DNA integrity has proven clinical value" (Fertil Steril 2006; 86 (Suppl 4) P35-37).

A new technique to detect Y chromosome deletions associated with male infertility

Y chromosome deletions currently represent the main genetic cause of infertility in men with idiopathic azoospermia and severe oligozoospermia. They are present in 5-10% of infertile men with sperm counts less than 5 million/ml. Known deletions involve the AZFa, AZFb, and AZFc regions on the Y chromosome. Most major andrology and infertility centres provide Y chromosome deletion screening tests as part of the routine investigation of male infertility. Although these tests work well as a diagnostic tool, they do not provide any new information regarding the Y chromosome. It is possible that novel Y chromosome deletions exist in the infertile population and that these abnormalities are currently undetected.



Monash IVF scientist, Dr Elissa Osborne won the **ESHRE exchange award at the annual FSA conference** for her study which focused on the development of a new technique, called array-CGH, to provide a more comprehensive assessment of Y chromosome abnormalities associated with male infertility. In a blind study, all partial and complete AZF deletions were correctly diagnosed and no false-positive results were obtained.

This is the first time that array-CGH system has been used for this purpose. This array provides proof of the concept that array-CGH technology could be used as an alternative to current Y chromosome screening techniques. This technology could potentially be a useful tool for the discovery of new microdeletions associated with defective sperm production. With further optimisation, it can be expected that array-CGH will have a profound impact on the diagnosis and genetic counselling of infertile males with a Yq deletion who are presenting for assisted reproductive technology.

Temperature fluctuations during IVF procedures

Monash IVF scientist, Rachael Kasap recently won the **Organon award for best poster** presentation at the FSA conference in Sydney. Her study identified

three times during the IVF laboratory processes when the eggs / embryos were potentially exposed to temperature changes. It also suggested ways of counteracting these fluctuations which have been shown to affect the integrity of the meiotic spindle.

Egg freezing still fraught with problems

Egg freezing has been a technology 'waiting in the wings'. Although there have been a number of pregnancies reported around the world the overall efficiency precludes its routine use. Only around 1 – 2 % of frozen eggs have been shown to result in a live birth. In countries such as Italy, where only a couple of eggs can be inseminated, egg freezing is the only alternative to discarding those eggs that cannot be inseminated.

The use of vitrification techniques (see page 4) may increase these efficiencies and this is actively being researched at Monash IVF. The freezing of eggs for social reasons i.e. preserving ones fertility for future use, does not seem to have much appeal in Australia probably because of the invasive techniques and costs involved in getting the eggs. There is no Medicare rebate for the IVF process when the woman is not actually medically infertile.

