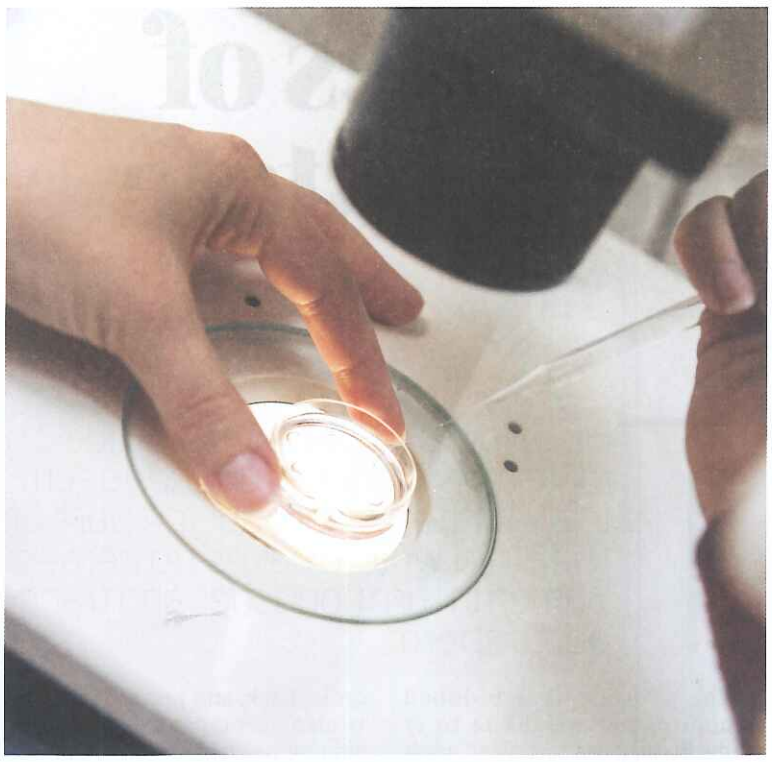
Pre-implanting genetic screening



HAVE your attempts at conceiving left you weary and tired? For most parents, this becomes a daunting task – trying everything and anything available in order to have an offspring. While they are left waiting for some miracle to happen, the other handful might have been successful, only to get disheartened down the line to learn that they now have a child who is a down syndrome or one that has inherited some genetic defects.

Dr Wong Pak Seng.

According to Sunfert International Fertility Centre fertility specialist Dr Wong Pak Seng, the previous IVF program is very ineffective with only a success rate of 45 per cent.

"Worst still when the embryo is unhealthy with genetic problems. The new innovative method of the 'Next Generation Sequencing' however has 60 to 65 per cent success rate," he said.

He explained that in order to make IVF more efficient, the fertility centre does preimplantation genetic testing (PGT) that examines the chromosomes and genes in the cell.

"The two types of PGT is preimplantation genetic screening where screening is done on the embryos to detect possible abnormalities and the other preimplantation genetic diagnosis where we look for specific known abnormalities."

"With the latest screening technology – 'Next Generation Sequencing (NGS)', the cell from the embryo is taken out and genetic test are run on it to screen for chromosomal abnormalities such as trisomy 21 - down syndrome, trisomy 18 - edward syndrome, trisomy 13 - patau syndrome, sex chromosome – turner, klinefelter syndrome, screening for unbalanced translocation and screening for sex-linked disease," he said.

"The importance of genetic testing significantly reduces the risks of implantation failure and miscarriage. This is because we now know that up to 70 per cent of embryos produced have been shown to be genetically abnormal."

"If we transfer three good quality cleavage stage (Day 3) embryos or two good quality blastocysts (Day 5), we could expect a 60 per cent pregnancy rate. However, this will in turn increase the risk of having multiple pregnancies. An unfortunate consequence of this may be miscarriages and premature delivery."

"PGS allows us to transfer genetically normal embryos. We can therefore achieve an equally good pregnancy rate, without transferring more embryos thus reducing the risk of multiple pregnancies and having an abnormal baby while reducing the duration of getting pregnant, he added.

Pertaining to preimplantation genetic diagnosis (PGD), Pak Seng pointed out that some parents already know that they are carrying some form of genetic abnormality such as thalassaemia and they do not want to pass these abnormalities on to the next generation.

"PGD allows us to look for this particular abnormalities in the embryo and to only transfer the ones that are free from such blood disease. This will ensure that the pregnancy is free from this particular genetic abnormalities," he said.

In addition to these, he said that for PGS, maternal age is not an issue.

"Couples with recurrent miscarriage, those who have a history of having a chromosomal abnormal baby in the family and those with multiple IVF failures can consider PGS. PGD, however are for couples who are carriers of the same single gene disorder," he said.

The fertility process as seen on a petri dish.