Consent Form

Preimplantation Genetic Screening (PGS) with 24 chromosome screening

MONASH IVF GROUP

Name (Female):	Partner's name:
Date of birth: _____/____/_____	Date of birth: _____/____/_____
IVF Number:	

Background Information

An individual's genetic information is packaged into strings of DNA called chromosomes. Normal human cells contain 46 chromosomes, or 23 chromosome pairs. These chromosome pairs are labelled 1 to 22 (the autosomes) and X and Y (the sex chromosomes).

Error/s in the early development of the sperm, egg or embryo can lead to an abnormal number of chromosomes in the developing embryo (ie: missing or extra chromosomes). This is known as chromosomal aneuploidy. An abnormal chromosome number can cause implantation failure, miscarriage, or the birth of a child with a chromosome abnormality (eg: Down syndrome). Preimplantation Genetic Screening (PGS) with 24 chromosome screening can be used to screen embryos for chromosomal aneuploidies involving any of the chromosomes. Following 24 chromosome screening, embryos are diagnosed as "normal" if they are found to have the correct copy number of each chromosome, taking into consideration the limitations of the test. Only embryos which are found to be chromosomally "normal" and are developing appropriately are considered suitable for transfer to the uterus.

Please refer to the "Preimplantation Genetic Diagnosis with 24 chromosome screening" fact sheet for background information before completing this consent form. If you do not have a copy of this fact sheet you can obtain a copy by contacting the Monash IVF Genetic Counsellor on +613 9590 8336.

Signature (Female):	Signature (Partner):
Date: _____/____/_____	Date: _____/____/_____

Consent

1. I/we understand and acknowledge that my/our embryos may be at risk of having chromosomal aneuploidy.
2. I/we understand that the results obtained from the PGS procedure are not 100% accurate and there is a risk of misdiagnosis.
3. I/we confirm that I/we wish to have cell/s biopsied from my/our embryo/s with the intention of identifying embryos which do not have chromosomal aneuploidy.
4. I/we understand that if I/we are undertaking a stimulated IVF cycle, my/our embryos must be created using Intracytoplasmic Sperm Injection (ICSI) as the fertilisation method. If ICSI is not performed, there is a significant risk of misdiagnosis due to the presence of additional sperm around the egg/embryo.
5. I/we understand that suitable embryos will be biopsied on Day 5/6 after egg collection, unless I/we (together with my/our IVF specialist) specify otherwise.
6. I/we understand that there is a fee associated with PGS testing, which will be charged in addition to the fees for IVF.
7. I/we are aware that if I/we elect to undertake Day 5/6 biopsy I/we will not know upfront how many embryos may potentially be suitable for biopsy over the course of Days 5 and 6 (as this is dependent upon the growth of the embryos). I/we understand that I/we will be updated on how many embryos were able to be biopsied at the completion of the biopsy process.
8. I/we understand that due to the time taken for 24 chromosome screening, my/our embryos will need to be frozen following embryo biopsy and, if suitable, transferred in a subsequent cycle. Only embryos that meet specific freezing criteria will be considered suitable for freezing. The risks involved in freezing embryos are outlined under the 'Risks and Limitations' section below.
9. I/we understand that the cell/s biopsied from my/our embryo/s may be transported between IVF centres/Genetic testing laboratories to facilitate PGS testing. Such transportation takes place in specialised transport containers under strict transportation conditions and all samples are handled by appropriately trained staff or professional courier services.
    - I/we consent to my/our biopsied cell/s being transported between IVF centres/Genetic testing laboratories as required for PGS testing.
    - I/we understand that during transportation, accidents beyond the control of all parties involved can occur resulting in the loss of viability of the biopsy sample/s (meaning the sample is no longer suitable for genetic testing and/or no PGS result will be possible). In these circumstances Monash IVF and its affiliated genetic testing clinics do not accept any responsibility for, or liability for, the biopsied cells or their condition upon arrival.

Signature (Female):	Signature (Partner):
Date: _____/____/_____	Date: _____/____/_____

10. I/we understand that PGS with 24 chromosome screening may not be able to give conclusive results on my/our embryo biopsy samples in cases where:
    (i) The biological contributors of the egg and sperm are related by blood or their parents are related by blood
    (ii) One or both of the biological contributors carries a chromosome aneuploidy (eg: Turner syndrome, Klinefelter syndrome)

    I/we understand that if either of the above applies in my/our case, I/we are required to notify the Monash IVF genetic counsellor to discuss whether or not PGS is possible and ensure that the most appropriate technology is offered.

11. I/we understand that once the biopsied cell/s have been screened and the PGS results reported, these processed sample/s may be archived for long term storage. Monash IVF does not accept any responsibility for, or liability for, the loss or degradation of these stored samples.

12. I/we agree that any embryos that are diagnosed as aneuploid will not be suitable for transfer or continued storage and will be removed from storage and allowed to succumb.

13. I/we understand that:
    - I/we have watched the PGS information session video on the Monash IVF website.
    - I/we have been given the opportunity to ask questions about 24 chromosome screening, as well as the information contained in this consent form and the fact sheet. I/we acknowledge that if I/we have additional questions I/we can arrange to speak with a member of the Monash IVF Genetics team.
    - Information relating to the results and embryos for transfer will be discussed with me/us by a member of the Genetics/Embryology team at the completion of PGS testing.
    - My/our IVF specialist strongly recommends chorionic villi sampling (CVS) or amniocentesis if a pregnancy is achieved to confirm the PGS results (please refer to the "Confirmatory prenatal diagnosis following PGD" fact sheet for further information).

14. I/we acknowledge that I/we have been advised of the need to abstain from unprotected sexual intercourse during the course of my/our treatment due to the possibility of a natural conception. I/we understand that this means I/we will need to abstain from unprotected sexual intercourse during the following times:
    - From the commencement of FSH injections during my/our stimulated IVF/PGS cycle up until 16 days post egg collection.
    - From the commencement of monitoring (urinary and blood) for my/our frozen embryo transfer cycle, up until the time of pregnancy testing following a frozen embryo transfer.

Signature (Female):	Signature (Partner):
Date: _____/____/_____	Date: _____/____/_____

Risks and Limitations

I/we understand that PGS with 24 chromosome screening has associated risks and limitations including, but not limited to, those listed below.

1. Risks of Embryo biopsy

I/we understand that:

- Not all embryos may be suitable for biopsy.
- Embryos may be damaged during the biopsy procedure or may fail to survive.
- Results may be inconclusive for some or all embryos. This means that the test is unable to determine whether the embryo is "normal" or aneuploid.
- Testing of all embryos may not be possible due to technical limitations.
- Embryos may fail to develop to a stage suitable for transfer.

Thus far babies born after 24 chromosome screening (or other types of PGS that include embryo biopsy) have had a similar rate of birth defects to babies in the general population. However, the potential for unknown consequences to a live born baby cannot be excluded. There may also be a risk of decreased viability of the embryo due to the biopsy procedure itself.

2. Risks of freezing embryos

I/we understand that there are some risks associated with freezing embryos. These may include:

- Not all embryos will develop to the stage suitable for freezing.
- Not all embryos will survive the freeze/thaw process.
- Embryos that do survive the freeze/thaw process may not continue to develop and may not be suitable for transfer from an Embryology perspective.

3. Possibility of a misdiagnosis

I/we understand that:

- The accuracy of testing is expected to be approximately 95%, but may vary depending on the quality of the biopsied materials and the quality of the resulting data.
- When the result is reported with 95% confidence, there is approximately a 5% (1 in 20) chance that the reported result is incorrect. If the reported result is incorrect the following may occur:
  - A "normal" embryo may be incorrectly diagnosed as abnormal and not considered suitable for transfer.
  - An abnormal embryo may be incorrectly diagnosed as "normal" and considered suitable for transfer. This may result in implantation failure, miscarriage, or the birth of an affected child.
- There is a chance of misdiagnosis as a result of mosaicism (ie: the presence of both normal and abnormal cell lines in the embryo). Mosaicism occurs by chance during embryonic development and can cause a PGS misdiagnosis if the biopsied cell/s are not representative of the remainder of the embryo.
- It is therefore possible that an aneuploid embryo may be transferred, resulting in a pregnancy/birth of an affected child.

Signature (Female): Date: _____/____/_____	Signature (Partner): Date: _____/____/_____

4. Limitations of 24 chromosome screening

I/we understand that:

- 24 chromosome screening is designed to test for aneuploidy involving the whole chromosome. It can also detect some cases of partial aneuploidy (a portion of a chromosome that is extra or missing), depending on the size of the chromosome segment involved. Small extra or missing chromosome segments will usually not be detected. The potential significance of any small extra or missing chromosome segments will vary depending on the chromosome region involved.
- 24 chromosome screening can detect some, but not all, cases of mosaicism (eg: the presence of both "normal" and abnormal cell lines in the embryo). The likelihood of detecting mosaicism will depend on the proportion of abnormal to "normal" cells in the biopsy sample, as well as the quality of the resulting data. Decisions relating to the fate of mosaic embryos will be made in accordance with the policy of my/our treating IVF clinic.
- 24 chromosome screening does not analyse specific genes and will not detect conditions caused by single gene mutations (eg: Cystic Fibrosis or Huntington disease).
- 24 chromosome screening does not guarantee that a baby resulting from a biopsied embryo will be free of other genetic conditions or other abnormalities. There is a 3-5% background population risk for birth defects or genetic conditions in any pregnancy. 24 chromosome screening only aims to detect the portion of birth defects caused by aneuploidy, and not these other risks.
- There remain multiple rare chromosomal problems, including but not limited to uniparental disomy (when the embryo receives two copies of a chromosome from one partner and no copies from the other partner) and certain types of aneuploidy, which could arise and that may not or cannot be tested for using 24 chromosome screening.
- 24 chromosome screening is a relatively new technology which may encounter data not yet seen, logistical challenges not yet encountered, or other unforseen issues that may affect the quality of results.

5. No results or inconclusive results

I/we understand and acknowledge that the procedure of embryo biopsy may not be able to provide a diagnosis of some/all embryos. This may be due to, but not limited to, one of the following:

- Poor quality of biopsied material (eg: very fragile or lysed cells).
- Limitations of testing only a few cells.
- Unpredictable and uncontrollable problems with transportation of biopsied cell/s, such as weather and air travel issues, or other circumstances beyond the control of Monash IVF.
- There is a chance that the embryo biopsy sample received by the Genetics laboratory is unacceptable for analysis and results cannot be obtained.

If a conclusive diagnosis is not possible on <u>any</u> embryos, I/we understand that I/we will need to choose between the following options:

Signature (Female):	Signature (Partner):
Date: _____/____/_____	Date: _____/____/_____

(i) Thawing all embryos and performing a repeat biopsy (if possible) to try to obtain a conclusive genetic result. If this option is chosen/available, re-biopsied embryos will need to be re-frozen while the repeat genetic testing is performed.

(ii) Thawing all embryos and allowing them to succumb.

(iii) Thawing one or two embryos and transferring them to the uterus (womb) without a genetic result and keeping the remaining embryos in storage.

(iv) Thawing all embryos and transferring one or two of them to the uterus (womb) without a genetic result. Performing a repeat biopsy (if possible) on the remaining embryos to try to obtain a genetic result. If this option is chosen/available, re-biopsied embryos will need to be re-frozen while the repeat genetic testing is performed.

6. Possibility of no embryo for transfer

I/we understand that at the completion of 24 chromosome screening I/we may not have an embryo available for transfer. This may occur as a result of one of the following scenarios:

- All embryo samples tested during an IVF cycle may be found to be aneuploid, meaning that no embryos are genetically suitable for transfer.
- Embryos diagnosed as chromosomally "normal" may not survive the freeze/thaw process and therefore may not be suitable for transfer from an Embryology perspective.
- Embryos diagnosed as chromosomally "normal" may survive the freeze/thaw process, but may not continue to develop normally and therefore may not be suitable for transfer from an Embryology perspective.

STATEMENT OF INTENT

I/we acknowledge that I/we have read and understood this consent form and the fact sheet provided to me/us. Based upon the information included in these documents, I/we would like to proceed with 24 chromosome screening and accept all risks and limitations outlined in this consent form.

I/we understand that PGS does not guarantee the birth of a genetically normal child. Due to the chance of undetectable mosaicism and the investigational nature of PGS, ongoing pregnancies resulting after PGS with 24 chromosome screening during IVF should always be followed by chorionic villus sampling (10-12 weeks) or amniocentesis (15-18 weeks) to confirm a normal fetus. Either of these follow up procedures (which carry their own risks), are accordingly necessary in order to make that determination.

Please note that PGS treatment should not commence without signed consent forms.

Signature (Female):	Signature (Partner):
Date: _____/____/_____	Date: _____/____/_____