CATALINA

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FACT SHEET

ICSI

Thank you for your enquiry about ICSI.

We have successfully completed our ICSI trials and are now offering ICSI services to our loyal customers.

What is ICSI?

The ICSI acronym stands for Intra-Cytoplasmic Sperm Injection. The process involves collecting oocytes (eggs) from a donor mare's follicles, these oocytes are then cultured in the Catalina laboratory until they have matured.

Once mature, the oocyte is fertilized via micro-injection of a single sperm cell. The fertilized oocyte should start to divide to become an embryo and the blastocyst stage of development is reached after 7–10 days of culture in an incubator.

The embryo can then be transferred into the uterus of a suitable recipient mare or vitrified (frozen) for future use.

What are the benefits of ICSI?

ICSI presents a good opportunity to obtain embryos from mares with persistent fertility problems that cause her to be unable to produce embryos naturally, due to her age or injury.

ICSI is also utilized when the semen from a stallion is in limited supply or sub-optimal fertility since only 1 single sperm is chosen and required for ICSI to be performed. Typically, we use just a quarter of one straw during the course of an ICSI procedure.

What is involved?

There are 4 main steps:

1 OPU

(also known as Oocyte Pick-Up / Oocyte aspiration)

This is where we take eggs (oocytes) from the mare's ovaries. In this procedure, under ultrasound guidance, a needle is used to aspirate follicles present on the ovary.

The procedure is performed with the mare standing while under sedation and takes 30–60 minutes, depending on how many follicles are being aspirated.

Your mare is required to stay with us overnight following completion of the procedure, to monitor her recovery.

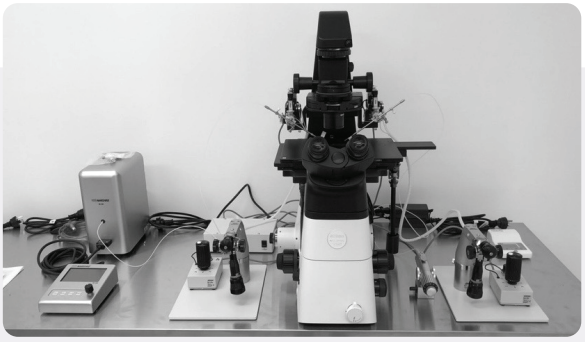
2 OOCYTE MATURATION

The immature oocytes are transferred to our laboratory for maturation in specially developed maturation media for 24–36 hrs.

3 ICSI

Those oocytes that have matured undergo the ICSI procedure where a single sperm is injected into the mature oocytes using a micro-manipulator.

After the ICSI process, the oocytes are then cultured until the embryos reach a stage of maturation called a blastocyst.



4 TRANSFER OR VITRIFICATION OF BLASTOCYSTS

Once the embryos have developed into blastocysts (between 7–10 days after ICSI) they are ready to be either transferred into one of our suitable recipients or vitrified (frozen) for use at a later date.

What results should you expect?

We are currently achieving a 20% blastocyst rate from oocytes that have undergone ICSI in our laboratory. Literature around the world suggest that the pregnancy rate should be around 75% of blastocysts transferred into recipients.

Oocyte quality and vigour is known to decline with donor mare's age so that older mares tend to have lower success rates than younger mares. Another major limiting factor is the number of follicles a mare has on her ovaries at any one time.

As a general rule, we recommend that mares have a minimum of 15 follicles between 10–25mm on their ovaries to make OPU and then ICSI worthwhile.

Internationally, it is suggested that on average it can require any one donor mare 3 OPU sessions to establish a pregnancy, but that is just an average; some mares establish multiple pregnancies on their first cycle while other mares with decreased oocyte viability or semen from a stallion that may have damage at the DNA level (DNA fragmentation) can prove to be more challenging.

Are there risks to the mare performing OPU?

The procedure involves sedating the mare, placing her in stocks and placing an ultrasound guided needle via her vagina into her ovarian follicles.

We have found the mares tolerate the procedure well but there is always the small but real risk of injury to the mares including but not limited to; ovarian bleeding resulting in mild to moderate discomfort (this is generally self-limiting but has been reported in one case internationally to result in death of a mare), infection including peritonitis or ovarian abscess (very rare but reported in the literature), rectal tears (similar to the risks with performing embryo flushing) and adverse reactions to the medications given which include sedations, antibiotics and anti- spasmodics.

If you have any other questions please do not hesitate to contact Catalina.

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HEAD VETERINARIAN