CRACK IT

Challenge 24: EASE Surgery Q&As.

Q. Do those embryos that have been cultured longer *in vitro* currently result in lower birth rates?

A. Yes.

Q. How do trans-cervical embryo transfer (TCET) implantation rates compare to surgical approaches?

A. Use of TCET achieves approximate implantation rates of 40% which are comparable to non-surgically treated animals.

Q. Pronuclear injection is one of the most common ways to generate transgenic animals, but do you find cytoplasmic injection gives higher success rates because it is a less invasive procedure?

A. Yes, but there are still issues remaining which affect embryo development following *in vitro* culture.

Q. How many procedures do you carry out in your laboratories? Are they frequent enough that you test compounds to investigate any impacts on implantation success rates?

A. The Sponsor carries out on average 16 IVF sessions and eight microinjection sessions/week. During the course of this work the Sponsor generates >1000 embryos/week, many of which would be amenable to this kind of study.

Q. Do applicants need to be proficient at non-surgical embryo transfer (NSET) from the outset of the project?

A. No, this is part of the expertise the Sponsor will offer as in-kind contribution.

Q. Do you know the current low implantation rates are due to embryos getting pushed out of the uterus or do they stay in place, but get degraded?

A. This is unknown. The aim of the Challenge is to gain a better understanding.

Q. How far along the uterus do you insert TCET?

A. About 1.5cm – the aim is to place the pipette tip towards the tip of the uterine horn. The accurate insertion of the device requires considerable skill and experience. However, it is also possible to use a dye to identify the placement of the tip during training.

Q. Have you considered that some blastocysts, no matter how you treat them, will never be suitable for implantation? Would you be interested in being able to identify those blastocysts not suitable for implantation and removing them from the process?

A. Yes – this would mean we can reduce our animal use and improve our processes

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Q. What is the time window for embryo transfer?

A. It depends on the approach used to solve the Challenge. If the solution delivers improvements to the *in vitro* culture conditions, embryo transfer will be at the morula/blastocyst stage. However, if the approach manipulates the uterine environment, embryo transfer will take place at an earlier stage of development.

Q. I have expertise in certain areas, but not in all areas that are required to solve the Challenge. How can I find other expertise?

A. Speak to the NC3Rs office (crackitenquiries@nc3rs.org.uk) and we will do our best to help connect you with the expertise you are seeking. You can also make use of the Challenge-specific LinkedIn pages that have been established.

Q. Who should we email with questions?

A. General questions can be sent to the NC3Rs. Questions regarding a specific Challenge can be sent to the Sponsors, but enquiries should be sent to ALL Sponsor parties for a particular Challenge. If preferred, please email the NC3Rs to introduce you to the Sponsors at CRACKITenquiries@nc3rs.org.uk.