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Stem cell research puts interstate rivalry on hold

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Victoria and New South Wales have put aside their competitive interstate rivalry to collaborate on a stem cell research project, as announced by Innovation Minister Gavin Jennings and NSW Minister for Science and Medical Research, Verity Firth, today.

Scientists from the Monash Institute of Medical Research (MIMR) and colleagues from New South Wales will compare two different methods of creating patient-specific stem cells: somatic cell nuclear transfer (SCNT) and induced pluripotent stem cells (iPS).

SCNT, or therapeutic cloning, is one method used to produce a source of individually-tailored stem cells. One aspect to this project will be to source oocytes, or immature egg cells to generate SCNT embryos from which embryonic stem cells are harvested. Both conventional sources (IVF Clinics) and novel sources (adult ovaries and altruistic donors) will be explored.

Unlike SCNT, iPS cells are derived from adult cells, such as skin, which are reprogrammed to behave like embryonic stem cells. Dr Paul Verma, Program Leader of MIMR's Stem Cell Biology Program and the Chief Investigator of the Victorian project team, will create the iPS cells for this project. His lab was the first in Australia to create iPS cells in mouse models. This project will allow him to create human iPS cells in Australia for the first time.

"On paper, iPS cells appear to be a preferable alternative to working

with human embryonic stem cells, but it's too early to make this assumption. Currently, iPS cell lines show variability in their potential to produce mature cells. If we can overcome this, they could certainly offer a great alternative to embryonic stem cells.

"Once our team produces the iPS cells, we will compare the properties of iPS versus cells developed through SCNT. Both methods need to be investigated further so we can determine which will produce the most robust cell lines," Dr Verma said.

The NSW project team, led by Professor Bernie Tuch, will investigate another method of obtaining oocytes – from consenting adult cancer patients who have had their ovaries removed. Professor Tuch's team will also use their proficiencies in characterising human embryonic stem cell lines and bioinformatics.

Mr Jennings said changes to the Victorian Infertility Treatment Act and the NSW Human Cloning and Other Prohibited Practices Act have opened up new opportunities for stem cell research in Australia.

"Australia is already a global leader in overall stem cell research and this new and clear regulatory framework gives us an opportunity to extend our leadership into SCNT which could transform how we treat diabetes, heart diseases and Parkinson's," Mr Jennings said.

Source: Monash University