

# Human-pig hybrid embryos given go ahead

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Last Updated: 12:01am BST 01/07/2008

A licence to create human-pig embryos to study heart disease has been issued by the fertility watchdog.

This marks the third animal-human hybrid embryo licence to be issued by Human Fertilisation and Embryology Authority and the first since the Commons voted in favour of this controversial research last month.

An HFEA spokesman said it had approved an application from the Clinical Sciences Research Institute, University of Warwick, for the creation of hybrid embryos. The centre has been offered a 12 month licence with effect from today, July 1.

advertisement The effort at the University of Warwick is led by Professor Justin St John. "This new license allows us to attempt to make human pig clones to produce embryonic stem cells," he said, where embryonic stem cells are able to turn into the 200 plus types in the body.

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"We will take skin cells from patients who have a mutation for certain kinds of heart disease (cardiomyopathy, which makes the heart lose its pumping strength) and put them into pig eggs after their chromosomes have been removed. We will then make embryos so that we can attempt to derive embryonic stem cells which will allow us to study some of the molecular mechanisms associated with these heart diseases.

"Ultimately they will help us to understand where some of the problems associated with these diseases arise and they could also provide models for the pharmaceutical industry to test new drugs. We will effectively be creating and studying these diseases in a dish.

"But it's important to say that we're at the very early stages of this research and it will take a considerable amount of time. There is still a great deal to learn about these techniques and much of our early work will involve understanding how we can make the hybrid cloning process as efficient as possible."

The study is aimed at understanding the way power-producing structures in cells, called mitochondria, are passed from egg to embryo. In the hybrid, the mitochondria mostly come from the egg, initially making up around half of the DNA by weight, and the team will do experiments in order to ensure that the trace of human mitochondrial DNA takes over, not least because it is designed to work with human nuclear DNA.

"The key thing we are doing is trying to create stem cells without any animal DNA in them. So even though these hybrid embryos normally have a small percentage of animal DNA, we are hoping to create cells that would have human chromosomes and human mitochondrial DNA." The reason is that, as the team puts it, "mixing of these two diverse populations of mitochondria can be detrimental to cellular function."

Dr Evan Harris, Liberal Democrat science spokesman, commenting on the HFEA decision to issue a license to the University of Warwick to create hybrid embryos combining human skin cells with enucleated pig eggs, said: "This application is a further indication of the interest in this sort of research by UK scientists, the decision of the HFEA to issue a license following stringent checks demonstrates that it is considered both necessary and ethical."

"While this approval comes under the existing 1990 Human Fertilisation and Embryology Act, both houses of Parliament have recently voted by large majorities to allow it into the future," said Prof Robin Lovell-Badge, of the MRC National Institute For Medical Research.

"It is good news that this license has been issued at a time when parliament has expressed overwhelming support for this research after an excellent public debate. I suspect other similar applications will follow and

hopefully this research can now progress without the hype."

Teams in Newcastle and London are already creating hybrids. The former have already created hybrids with cow eggs to study the basics of how the use of genes changes in early development, the latter a range of species to generate stem cells from people with neurodegenerative disorders.

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