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News in Science - Stem cell bill bans human-animal 'hybrids' - 08/11/2006

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NEWS ANALYSIS

Stem cell bill bans human-animal 'hybrids'

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ABC Science Online

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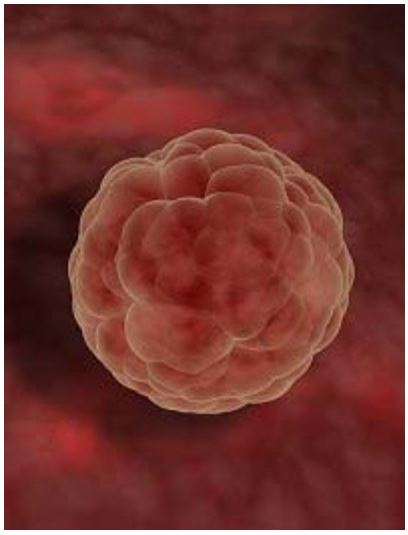
Australian scientists will not be allowed to use animal eggs to create embryonic stem cells under a bill passed by the Senate this week.

For now, this rules out creating 'hybrid' human-animal cells for human disease research in Australia.

Despite this, top stem cell researchers have welcomed the bill, which lifts a ban on therapeutic cloning by allowing the creation of human embryos specifically for research.

The bill, which will now go before the House of Representatives, allows a process called somatic cell nuclear transfer (SCNT).



The bill lifts a ban on therapeutic cloning, allowing the creation of human embryos for research *(Image: iStockphoto)*

This involves removing the nucleus from an egg and replacing it with one from a non-reproductive body cell, of a patient for example, to produce an embryo, the same method used to produce Dolly the sheep.

Under the bill, narrowly passed by two votes in the Senate, SCNT embryos will not be implanted, but used to produce embryonic stem cells and then destroyed after 14 days.

The *Lockhart report* late last year called for amendments to Australian cloning law to allow therapeutic cloning using SCNT, and it recommended that both human and animal eggs be permitted for use in research.

But the bill passed this week rules out the use of an animal egg as a host for a human nucleus.

It comes at the same time that researchers in the UK are requesting permission to use cow eggs fused with human material for research on Parkinson's, stroke and Alzheimer's.

Lockhart committee member, Professor Loane Skene from the University of Melbourne, says the committee recommended that animal eggs be used in research to reduce the demand on

women for eggs.

"It's an invasive procedure for a woman to donate an egg and the eggs are very precious," says Skene. "So we thought it would be better to allow another source of eggs, namely animal eggs, to be used."

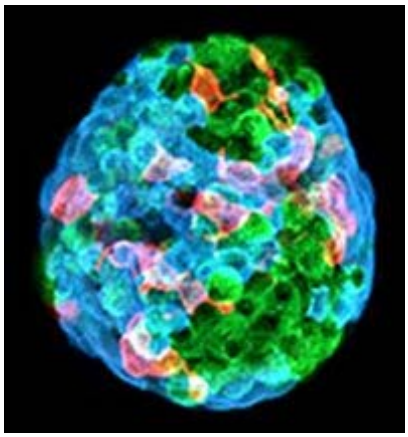
"It was never envisaged that any stem cells that were produced from this would go into treatments for people."

Bill welcomed despite animal egg ban

Despite the ban on animal eggs, leading stem cell researchers have welcomed the bill.

Professor Bernie Tuch of the University of New South Wales in Sydney says the decision is as momentous as the assassination of US president John F Kennedy.

"Reason has prevailed," says Tuch, who is quietly confident the bill will pass the House of Representatives.



Researchers hope to turn embryonic stem cells into insulin-producing cells like this one for people with diabetes *(Image: NIH)*

Professor Alan Trounson of Monash University in Melbourne says the decision is consistent with public opinion show by surveys to be 60-80% in favour of therapeutic cloning.

"I'm very pleased," he says.

But Trounson says the decision to ban the use of animal eggs will limit research.

He says research using animal eggs helps understand the factors in cells that are responsible for reprogramming it to become pluripotent, capable of turning into many other kinds of cells.

And he says the hope is that these factors could one day be identified and made synthetically, thus eliminating the need for embryos altogether in stem cell research.

But he says thousands of eggs are required to sequence and identify the factors and there are just not enough human eggs for this.

"You can't get thousands of human eggs to extract the factors," he says.

Tuch is less concerned about a shortage of eggs.

He says one possible source will be the 240 women a year that have their ovaries removed because a genetic predisposition to ovarian cancer.

Trading eggs?

Trounson says eggs will be gathered internationally for research to find suitable embryonic stem cell lines.

A sociologist who studies the global trade in human and animal tissue, Peta Cook of the

Queensland University of Technology in Brisbane says it's this international context that needs to be considered when it comes to the pressures on women to sell their eggs.

While this is illegal in Australia, Cook says there is a booming international trade in body parts.

"If I need a kidney, I can travel to Pakistan or India and receive one from a live donor," she says. "It is close to an on-demand system."

Similarly, women in Eastern Europe have had their eggs taken illicitly and sold by health-care professionals, says Cook.

She says that in the US a woman can sell her eggs for up to US$10,000 and this is very tempting to poor university students and such financial incentives can undermine informed consent and autonomous decision-making.

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