Human cloning: who is cloning humans, how, why and who is paying
How human clones are being made - for medical research. Arguments for and against human cloning research. Why investors are moving away from human cloning and why human cloning now looks a last-century way to fight disease. Why some people want to clone themselves or even to clone the dead (and not just cloning pets).

[youtube: http://www.youtube.com/watch?v=ZfLyOGQ3TpA]

Australian government gives first license to create cloned human embryos to try and obtain embryonic stem cells. (17 Sept 2008)

The in vitro-fertilization firm Sydney IVF was granted the license and reportedly has access to 7,200 human eggs for its research.

If the firm is successful it would be a world first, the Australian government's National Health and Medical Research Council (NHMRC), which granted the license.

United Nations has given up its attempt to introduce a worldwide legal ban on some or all types of human cloning (3 March 2005). On Tuesday its deeply divided general assembly voted to adopt a watered-down "declaration" that condemns all forms of human cloning but is not legally binding. The declaration, which was passed by 84 votes to 34, with 37 abstentions, prohibits "all forms of human cloning inasmuch as they are incompatible with human dignity and the protection of human life". But it has been widely criticised for being imprecise and meaningless.

Cloned cows may be safe to eat (12 April 2005) - claims made following health and safety tests on meat and milk from a small number of cloned cows culled from a herd of 100. Although

fat content appeared to be a little higher in the clones, no other significant differences were found. Speaking on BBC World TV, Dr Patrick Dixon commented: "Although the meat may be safe, cloning cattle for farmers is a stupid thing to do from the commercial point of view. Failure rates are high, deformity and other development problems are very common, and the proceedure is expensive as well as slow. It would only be worth cloning a very special bull, to create a twins for breeding, but even then the costs might outweigh the benefits. We are very unlikely to see herds created this way, unless there is something very unique about them - for example if they had human genes added so that the cows produced something similar to breast milk. The technology exists to do this, but it is uncertain if such a product would be acceptable to mothers."

Dr Dixon pointed out that cloned herds would be very vulnerable to attack by bacteria, viruses or fungi. "Unlike normal herds, cloned animals show no genetic variation, so the same strain of virus that kills one animal would be likely to kill an entire herd. Every species relies on genetic variation to for resistance to disease and cloning would create real risks to farmers if carried out on a large scale - even supposing it were possible." For more see: cloning stories and human breast milk from cows?

Growing new tissue and organs - stem cell research and therapeutic cloning Bone marrow and other tissues could repair your brain, spinal cord and heart and cure diabetes or old-age blindness. Adult stem cells promise investor returns while embryonic stem cells and therapeutic cloning raise major ethical, legal, and image problems.

Korean and US scientists claim human cloning breakthrough - Woo Suk Hwany of Soeul National University in Korea announced in February 2004 that he had succesfully cloned healthy human embryos, removed embryonic stem cells and grown them in mice. Just a couple of weeks ealier, Dr Panos Zavos made another of his frequent cloning announcements about attempts he and others are making to produce healthy cloned babies. The Korean and US teams are using human cloning technology to try to create stem cell lines which can be used to study disease.

While they are opposed to the abuse of human cloning technology to produce babes, their own cloning advances are making life easier for people like Zavos. Either way, most stem cell research is shifting rapidly away from human embryo cloning and use of embryonic stem cells, to adult stem cell development. Embryonic stem cells are controversial to use (many countries have banned the work), hard to grow, hard to control (can become cancerous), are rejected in the body unless made to order for an individual by cloning, or used in an immune protected site like the brain.

That's why the makers of Dolly the Sheep ran out of human cloning money and went out of business. Human cloning for medical research is looking very last-century, and researchers are losing interest. Despite the UK passing laws several years ago allowing human cloning for research, not one application has yet been received. Investors really can't see the point either. Nor can many other nations including the rest of Europe, who have made human cloning illegal - even for medical research. In comparison, there is no shortage of commercial funding for adult stem cell research which is showing spectacular results in treating mice and rats with stroke,

heart and spinal cord damage. Huge potential, no controversy, rapid progress, easy funding.

There is nothing particularly special about an embryonic cell from the genetic point of view: the genes are the same as in adults. The only difference is the nature of the chemical bath around those genes. But as we are discovering more, you don't need to put an adult nucleus into an egg to create the right environment: in many cases we can do so in other ways. Umbilical cord cells are also a useful alternative.

Professor Jonathan Slack at Bath University has managed to convert human adult liver cells into pancreas cells producing insulin, using a simple chemical switch. Others have restored normal function to rats whose spinal cords have been cut. Clinical trials using bone marrow to rebuild heart muscle have been successful. Regeneration of adult brain has been seen using adult cells in animals - and so on.

Press Association copy:

"Dr Patrick Dixon, an author and expert in the ethics of human cloning, dismissed the idea that today's announcement marked a breakthrough.

He said: "Except in tissues like the brain, there are huge problems with rejection of these embryonic stem cells if they are introduced into adults.

"It is very difficult for them to grow properly and very difficult to control them," he said. "The idea that this offers a real breakthrough is based on a scientific nonsense.

"But in this supposedly spectacular benefit lies a serious risk that this technology will be abused."

He cautioned that developments in these techniques would be "handing a gift" to controversial scientists such as Dr Panos Zavos and Clonaid intent on cloning human babies.

Dr Dixon said embryonic stem cell research was being overtaken by advances using adult cells. "Human cloning technology using embryonic stem cells is very last century. We do not need it.

"It is being overtaken rapidly by the spectacular advances in tissue repair using adult stem cells taken from the person who is unwell.

"Clinical trials are already showing results in people with heart failure while animal studies have shown successful repair in brain after stroke, heart muscle, spinal cord and other tissues."

Dolly the Sheep is dead - possibly the world's most famous animal was put to sleep on 14th February 2003 after developing progressive lung disease. Dolly was cloned from a dead adult sheep using frozen cells and born on 5th July 1996. There have been many reports that Dolly may have been getting old before her time, developing arthritis and possibly other problems. Scientists are waiting for the results of a post mortem to try to understand whether Dolly's latest problems were linked to the cloning technique, which commonly causes severe abnormalities.

The big worry is whether teams trying to clone human babies will accidentally create very sick children.

Clonaid claims birth of first human clone (Eve) by caesarian section on 26th December 2002 and a second child in Europe (Netherlands) to a lesbian couple in early January, a third in late January to a Japanese couple who cloned their dead son, plus another to a couple from Saudi Arabia and a further child - country of origin not declared. But no evidence of any kind had been offered by mid February to substantiate their claims.

Born outside the US to an American woman, Eve was apparently created using Dolly technology - a skin cell and a human egg from the "mother" who is infertile. Clonaid claims 3 other "mothers" will give birth soon, one of which is carrying a twin of a dead child.

While many experts expressed doubts about the claims, Clonaid said that independent gene testing would prove the claim about Eve in less than a week. This promise was withdrawn after a lawsuit was begun in the US to make Eve a ward of court, on the basis that the "mother" was the baby girl's twin sister and the "mother" had no legal parental rights even though she had just given birth to her own twin. A similar court case was launched in the Netherlands after reports that the second birth was to a Dutch lesbian. Clonaid say that the "parents" are afraid their cloned babies will be seized and taken away from them permanently. In early February Clonaid said that testing of the Japanese baby boy was under way.

Editor: The claims could be true given the pace of human cloning research and the commitment to the project. For example Lu Guangxiu's team in Changsha China reported in January 2003 that they had also successfully grown 80 human clones, four of them to balls of hundreds of cells, the stage when IVF embryos are usually implanted. Even if Clonaid's claims are false, the momentum for human cloning is so great, the global race so intense, that we are likely to see clones born quite soon elsewhere - unfortunately - with huge physical and emotional risks to the babies created. More on this story about Clonaid, and press comments arguing against human cloning, by Dr Patrick Dixon.