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

Scientists in Kobe, Japan, have successfully cloned mice from another mouse which had been frozen for 20 years. They removed the nucleus from brain cells which had been thawed out, and fused each nucleus with an unfertilised egg from which the nucleus had been removed. They gave each egg a small electric shock to simulate penetration by a sperm, and some began dividing normally into clones of the original mouse. They then implanted these cloned embryo into mouse wombs, where some developed normally. (1st November 2008)

What is remarkable about this animal cloning announcement is that these cells were taken from whole mice, which had not been treated in any special way before freezing. When living or dead tissue is frozen, small ice particles usually grow inside cells which often result in great damage to cell structure. For this reason, scientists usually remove cells from the body of an animal or human that they want to preserve by freezing, and soak the cells in a kind of antifreeze to prevent cell damage.

There is nothing new in cloning animals from frozen cells. Dolly the Sheep was the first animal cloned in this kind of way in 1997, and Australian researchers cloned a pig in 2001 from cells that had been frozen for two years.

So could extinct animals be cloned from frozen bodies preserved in permafrost? While this is a small possibility, the reality is that even at -20 degrees centrigrade, decomposition still happens slowly, and permafrost is often warmer than that. Bodies need to be as cold as - 140 degrees centigrade or more to totally stop cells becoming more damaged as time goes by.

Human cloning - grieving relatives who want to clone the dead

For some time people have contacted me on this website asking about ways to recover their loved ones using human cloning techniques - maybe from frozen tissue taken before death and held for research purposes in laboratories. There is no doubt that today's news will increase the number of people who think about such things. There is a fascination about human cloning

research despite the huge risks, and some scientists have made claims in the past that they have implanted viable human cloned embryos into mothers to produce healthy babies. (Claims have never been proven, but a growing number of research centres are cloning human embryos routinely for medical research - so-called therapeutic human cloning. These embryos are used as sources of cell lines for growing in culture and the embryos themselves are destroyed at 14 days after fertilisation.)

However we need to look at the facts: cloning of animals requires a huge number of attempts to get successful births. Many cloned animals either die in the womb from malformations or are born with major life-threatening abnormalities. Even if scientists could manage to produce a healthy human clone from someone who died many years ago and who had been frozen, or had tissue samples frozen, it is hard to imagine the huge psychological risks to the wellbeing of such a child as they grow up.

That may not stop a very small minority of wealthy people in future, who may be driven by a desire to see dead people cloned - relatives, heros of history, people whose genes they admire.

I remember in 1998 a woman called Diane e-mailed me after her father died. She wrote that her father was a remarkeable man, "and I intend to see that he goes on in the world". Diane's hope was to be able to clone her father using a donated egg and some of her father's cells. She wanted to have the clone of her father implanted into her own womb, so she would give birth to a child that would technically be her uncle.

Please do COMMENT on the news story using the form below.

* The Japanese research into cloning a frozen mouse was undertaken at Kobe's Centre for Developmental Biology, reported in journal Proceedings of the National Academy of Sciences (PNAS).

Many more articles and videos on human cloning