

Human organs 'could be grown in animals within a year'



A panel of scientists and legal experts appointed by the government has drawn up a recommendation that will form the basis of new guidelines for **Japan's** world-leading embryonic research.

There is widespread support in Japan for research that has raised red flags in other countries. Scientists plan to introduce a human stem cell into the embryo of an animal – most likely a pig – to create what is termed a "chimeric embryo" that can be implanted into an animal's womb.

That will then grow into a perfect human organ, a kidney or even a heart, as the host animal matures.

When the adult creature is slaughtered, the organ will then be harvested and transplanted into a human with a malfunctioning organ.

"This recommendation is a very important step forward and one that has taken us three years to achieve," Professor Hiromitsu Nakauchi, head of the centre for stem cell biology and regenerative medicine at the University of Tokyo, told The Daily Telegraph.

Prof Nakauchi's team have already succeeded in injecting stem cells from rats into the embryos of mice that had been genetically altered.

"We can apply the same principles to human stem cells and pigs, although the guidelines have not permitted us to do this yet," he said.

At present, the Japanese guidelines permit scientists to develop chimeric embryos in laboratory conditions for a maximum of 14 days, but the next stage in the process – the embryos being implanted into an animal's womb – is prohibited.

As soon as government officials agree on the details of the revised guidelines – a process that is expected to take 12 months – Prof Nakauchi believes the first pig carrying a human organ can be produced "quite quickly, because the technique has been established already."

The scientists plan to initially breed a pig with a human pancreas as it is a relatively easy organ to create, Prof. Nakauchi said, and perfecting the technique will bring relief to millions of people with diabetes.

Creating kidneys and a human heart will be far more complicated, he said, but are feasible. He suggested that practical use for the organs may be as little as five years away.

Eventually, he hopes to be able to have numerous human organs within each donor animal that can be harvested all at the same time.