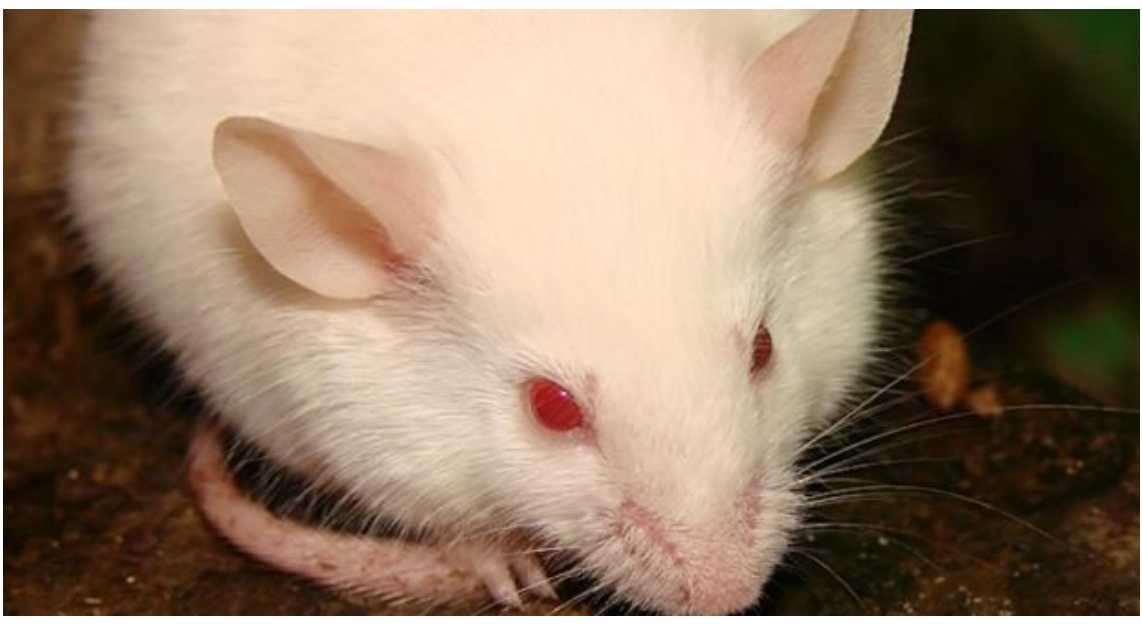
First functional organ to be grown inside an animal

University of Edinburgh researchers used reprogrammed cells created in a lab



Researchers re-programmed cells harvested from the embryos of a genetically engineered mouse and grafted them onto the kidney of a genetically similar adult mouse.

Michel Destrade

Topics: News Science organ thymus Centre For Regenerative Medicine

Mon, Aug 25, 2014, 18:33

Regenerative medicine made an important step forward today with the announcement of the first successful growth of a well-developed functioning organ inside the body of a living mouse. The potential benefits to medicine of this experiment are all the more impressive that the organ in question was a thymus, an integral part of the immune system.

The work was carried out in the Medical Research Council Centre for Regenerative Medicine at the University of Edinburgh. First the researchers "re-programmed" cells harvested from the embryos of a genetically engineered mouse. In this way they obtained functional thymus cells in the lab. Then they accumulated those cells and grafted them onto the kidney of a genetically similar adult mouse.

Four weeks later they recovered well-formed organs with the same shape and immune function as a regular thymus, the research team say in a paper published today in the journal *Nature Cell Biology*.

The thymus is a small organ situated under the sternum, just above the heart. It is mostly active in childhood, and plays a vital role in building up an active immune system to help protect the body against infections.

Currently the main treatment for a deficient thymus is transplantation, which is limited by donor availability and compatibility.

Being able to engineer a working thymus through cellular reprogramming would change completely the way patients with thymus disorders are treated, the researchers said.

"This is an exciting study but much more work will be needed before this process can be reproduced in a safe and tightly controlled way suitable for use in humans," said Dr Rob Buckle, head of the research centre.