

## Reprogrammed cells create whole, fully functioning organ

Laboratory-grown replacement organs have moved a step closer with the completion of a new study. Scientists have grown a fully functional organ from transplanted laboratory-created cells in a living animal for the first time.

The researchers have created a thymus — an organ next to the heart that produces immune cells known as T cells that are vital for guarding against disease.

They hope that, with further research, the discovery could lead to new treatments for people with a weakened immune system.

The team from the MRC Centre for Regenerative Medicine at the University of Edinburgh took cells called fibroblasts from a mouse embryo. They turned the fibroblasts into a completely different type of cell called thymus cells, using a technique called reprogramming.

The reprogrammed cells changed shape to look like thymus cells and were also capable of supporting development of T cells in the lab — a specialised function that only thymus cells can perform.

When the researchers mixed reprogrammed cells with other key thymus cell types and transplanted them into a mouse, the cells formed a replacement organ. The new organ had the same structure, complexity and function as a healthy adult thymus.

It is the first time that scientists have made an entire living organ from cells that were created outside of the body by reprogramming.

Doctors have already shown that patients with thymus disorders can be treated with infusions of extra immune cells or transplantation of a thymus organ soon after birth. The problem is that both are limited by a lack of donors and problems matching tissue to the recipient.

**Read the full, original story: [Living organ grown from lab-created cells](#)**