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models, and human thymus samples. Ultimately, the project aims to design an artificial thymus that can be implanted to promote T cell immunity.

New treatments are needed because the thymus deteriorates with age, which is why older people are often more susceptible to infections such as flu.

Damage to the thymus is also one of the major risks to life for patients who have undergone a bone marrow transplant, for example to treat blood cancer.

Previous studies have shown that transplanting thymus cells into patients can be an effective way to repair and restore the immune system. The major barrier to using this as a treatment is the lack of a source of these specialized cells. In the previous studies, scientists used cells from newborn babies that had been removed as a normal part of heart surgery. Cells from adult donors do not have the same effect.

Professor Clare Blackburn of the MRC Centre for Regenerative Medicine at the University of Edinburgh, who is leading the study, said: “This exciting new project will test whether we can grow thymus stem cells in the lab and use these to make a fully functional organ for transplantation.

“We will then investigate how to produce these cells in sufficient quantities and high enough quality that they could, in the future, be transferred into patients.”

The award from the European Union Seventh Framework Programme (FP7/2007-2013 under grant agreement number 602587) will be shared by nine research teams across Europe and the US.

The Thymistem initiative is also collaborating with other major stem cell projects that have recently received funding from the European Union. These include a project to develop insulin-producing cells for treating diabetes, research to produce bone and muscle-forming cells in the lab and a project to develop cell replacement therapies for neurological disorders.

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