Tissue Regenix, a spin-out company specialising in human tissue regeneration products, believes its cutting-edge technology could revolutionise medicine – in a global industry worth an estimated $7 billion.

The company, which formed in 2006 to commercialise EPSRC-funded research by Professors John Fisher and Eileen Ingham at the University of Leeds, has won European approval to sell its first product – a vascular patch derived from pig tissue which repairs damaged human veins; providing much-needed resource in an area where there is a chronic shortfall in donor tissue availability.

IMPACT ON HEALTHCARE

- The company’s dCELL® technology removes cells and other components from animal and human tissue, allowing it to be used without anti-rejection drugs to replace worn-out or diseased body parts.

- Potential applications are diverse and address many clinical needs such as vascular disease, heart valve replacement and knee repair.

Biological scaffold

Tissue Regenix’s dCELL® Vascular Patch is a sterile, non-cellular biological scaffold which is intended to be permanently implanted into the human body for vascular repair. An example of its use is as a patch to close a blood vessel after the surgical removal of plaque in an artery that has become narrow or blocked.

Professor Fisher, who leads the research, says: “If you take a natural tissue and strip off all of the donor’s cells you’re left with a biological scaffold made mostly of a protein called collagen, which is compatible with the patient receiving the scaffold.

“The scaffold is good from an engineering perspective because it is strong, flexible and retains the properties of the natural tissue.

“The scaffold also has the appropriate shape and size, and from a biological perspective is good because a patient’s cells can bind to it and repopulate it easily.”

Because a patient’s own cells can populate the new biological scaffolds, they are accepted by the immune system and can be repaired like normal tissue.

The products don’t require special storage and implant performance matches the native tissue it replaces. The scaffolds rapidly and successfully regenerate in the body and further surgery is not necessary.

John Samuel, executive chairman of Tissue Regenix, which joined London’s AIM stock market in June 2010, says: “The granting of a European CE mark for the dCELL® Vascular Patch, our first product approved for launch, is an historic moment for Tissue Regenix.

“As well as providing access to some of the world’s largest medical devices markets, it acts as a validation of our dCELL® technology platform.”

The product was developed in conjunction with the NHS Blood & Transplant Tissue Services. Funding for the research also came from the Children’s Heart Surgery Fund, the Department of Health and the Wellcome Trust.

For more information about EPSRC and the impact it is making visit www.epsrc.ac.uk

233,000
Number of deaths per year from cardiovascular disease. The dCELL® Vascular Patch can help repair damaged veins and prevent deaths.
$7 billion

THE POTENTIAL VALUE OF THE GLOBAL INDUSTRY FOR HUMAN TISSUE REGENERATION PRODUCTS