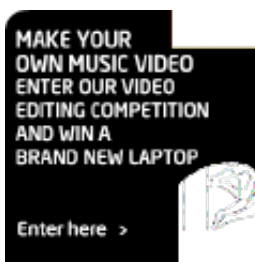


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Creation of new organs a step closer

Alok Jha, science correspondent
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[The Guardian](#)

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Scientists are a step closer to growing replacement organs and tissues which can be transplanted into patients. Their breakthrough uses tiny protein scaffolds that encourage stem cells to grow into three-dimensional structures for the first time.

Growing organs that are genetically matched to patients is one of the great hopes of research using stem cells.

These are the body's master cells, which can turn into any type of tissue given the right chemical signals - a process called differentiation.

Although scientists are beginning to better understand how stem cells differentiate they face a stumbling block when it comes to growing complete replacement tissues and organs for patients. Currently scientists can only artificially grow tissue on Petri dishes, a process that results in an almost lifeless flat mass of cells usually unsuitable for transplantation.

This problem could soon be in the past, however. In a paper published yesterday in the journal Public Library of Science One, Shuguang Zhang at the Massachusetts Institute of Technology describes how he grew a healthy 3D culture of mouse adult stem cells in the lab, using a scaffold his team made from a network of protein fibres.

Dr Zhang said that on his scaffolds cells survived longer and differentiated better, without the need for additional





chemicals to encourage growth.

"The time has come to move on from two-dimensional dishes to culture systems that better represent the natural context of cells in tissues and organs," said Dr Zhang. He added that the resulting scaffold of cells could be implanted into people with no ill effects.

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