# 'Off the shelf' new livers from stem cells, glimmer of hope

A researcher team has successfully produced a small-scale version of a human liver in the laboratory using stem cells. This could be a boon for patients waiting for liver transplants althou it will take years to perfect the procedure say researchers.

By Dr Ananya Mandal, MD 1 Nov 2010

The breakthrough came at Wake Forest University Baptist Medical Centre. The team presented the findin at a conference of the American Association for the Study of Liver Diseases in Boston. UK experts said it was an "exciting development" but it was not yet certain a fully-functioning liver was possible. They explain that constructing a three-dimensional organ from stem cells is a difficult task.

The researchers used the stem cells over a scaffold to form new liver tissue. They also used a detergent strip away the cells from the liver, leaving only the collagen framework which supported them, and a netwo of tiny blood vessels. The new stem cells - in this case, immature liver cells and endothelial cells, to produ a new lining for the blood vessels - were gradually introduced. They left it for growth in a "bioreactor" which nurtured the cells with a mixture of nutrients and oxygen and found that there was widespread cell growth within the structure, and even signs of some normal functions in the tiny organ.

## Excited about possibilities

According to Professor Shay Soker, who led the research, "We are excited about the possibilities this research represents, but must stress that we're at an early stage, and many technical hurdles must be overcome before it could benefit patients... Not only must we learn how to grow billions of liver cells at one time in order to engineer livers large enough for patients, we must determine whether these organs are sa to use."

Dr Mark Wright, from Southampton University feels, "In an era of increasing liver disease and death with a chronic shortage of liver transplants this represents an exciting development in an important field of work..

The researchers appear to have made the step of combining stem cell technology with bioengineering as first step to producing artificial livers...Whilst 'off the shelf' new livers are clearly still a long way off, this wo gives a glimmer of hope that this is no longer just the stuff of science fiction."