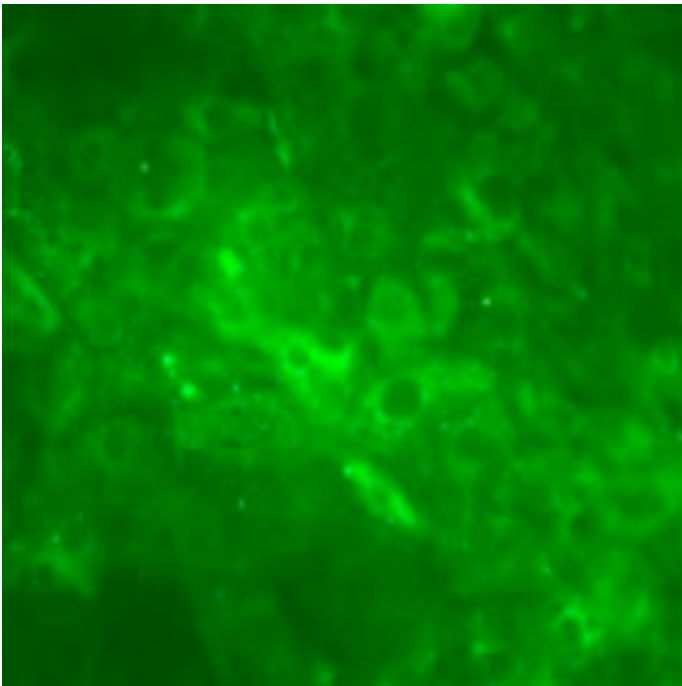


Scientists create liver cells from patients' skin

By [Kate Kelland](#)

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(Reuters) - Scientists have created liver cells in a lab for the first time using reprogrammed cells from human skin, paving the way for the potential development of new treatments for liver diseases that kill thousands each year.

Cambridge University scientists who reported their results in the *Journal of Clinical Investigation* on Wednesday, said they also found a way of avoiding the kind of intense political and ethical rows over embryonic stem cells which are currently hampering work in the United States.

"This technology bypasses the need for using human embryos," said Tamir Rashid of Cambridge's laboratory for regenerative medicine, who led the study. "The cells we created were just as good as if we had used embryonic stem cells."

Embryonic stem cells are seen as the most powerful and malleable type of cells but are controversial because they are harvested from human embryos when they are just a few days old.

Liver disease is the fifth largest cause of death in developed nations after cardiovascular, cancer, stroke, and respiratory diseases. In the United States, it accounts for around 25,000 deaths a year, and experts say that in Britain liver disease death rates among young and middle-aged people are increasing at a rate of 8 to 10 percent a year.

Rashid said that despite 40 years of trying, scientists have so far never been able to grow liver cells in a lab, making research into liver disorders extremely difficult.

Given a shortage of donor liver organs, alternatives are urgently needed, he added. This study increases the likelihood that alternatives can be found, either by developing new drugs or by using cell-based therapy -- when cells from patients with genetic diseases are "cured" and transplanted back.

Liver diseases can be either inherited, or caused by alcohol abuse or infections such as hepatitis.

STEM CELLS

For their study, Rashid's team took skin samples from seven patients who were suffering from a variety of inherited liver diseases, and three from healthy people to act as comparisons.

They then reprogrammed cells from the skin samples into a kind of stem cell called induced pluripotent stem (IPS) cells, and then reprogrammed them to generate liver cells which mimicked the broad range of liver diseases in the patients they had come from. They used the same technique to create "healthy" liver cells from the comparison group.

Stem cells are the body's master cells and scientists are trying to find ways to use them to grow new organs, repair damaged hearts or severed spinal

ords, or replace brain cells destroyed by strokes, Alzheimer's or Parkinson's disease.

"Previously we have never been able to grow liver cells in the laboratory, so this should open up a whole new sphere of research," Rashid said.

Commenting on the study, Mark Thursz, a specialist in liver disease at Imperial College in London, said it was a major step which may in future be a potential source of new liver cells for patients with liver failure.

Research work using human embryonic stem cells was thrown into doubt on Monday after a district court issued a preliminary injunction halting federal funding for it.

(Editing by [Nina Chestney](#))