

'Bridge to transplant': Mini human livers grown in rats spurs research that could alleviate transplant shortage

Using skin cells from human volunteers, researchers at the University of Pittsburgh School of Medicine have created fully functional mini livers, which they then transplanted into rats.

In this proof-of-concept experiment, the lab-made organs survived for four days inside their animal hosts. These results were published [June 2] in Cell Reports.

"Seeing that little human organ there inside the animal – brown, looking like a liver – that was pretty cool. This thing that looks like a liver and functions like a liver came from somebody's skin cells," said senior author Alejandro Soto-Gutierrez.

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These mini livers secrete bile acids and urea, just like a normal liver, except they're made-to-order in the lab using patient cells.

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In all cases, blood flow problems had developed within and around the graft, but the transplanted mini livers worked – the rats had human liver proteins in their blood serum.

Soto-Gutierrez is optimistic that this research is not merely a stepping-stone on the path toward growing replacement organs in a lab, but also a useful tool in its own right.

"The long-term goal is to create organs that can replace organ donation, but in the near future, I see this as a bridge to transplant," Soto-Gutierrez said. "For instance, in acute liver failure, you might just need hepatic boost for a while instead of a whole new liver."

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