

Restoring what's lost: Uncovering how liver tissue regenerates

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The liver is unique among mammalian organs in its ability to regenerate after significant tissue damage or even partial surgical removal.

Laurie DeLeve and her colleagues at the University of Southern California in Los Angeles wanted to better understand which cells are specifically responsible for driving liver regeneration.

A specialized cell type, known as liver sinusoidal endothelial cells, has generally been thought to promote regeneration of [liver tissue](#). However, the DeLeve team suspected that stem cells and [progenitor cells](#), which have the capacity to differentiate into mature cell types, might be responsible for stimulating liver regeneration by generating hepatocyte growth factor.

Using a rat model system, they first identified the presence of stem and progenitor cells that give rise to liver sinusoidal endothelial cells in both the liver and the bone marrow. They next sought to determine which population of stem and progenitor cells are required for regeneration. DeLeve and colleagues found that the bone marrow-derived cells were not required for [liver cell](#) proliferation in the absence of damage.

In contrast, following surgical removal of a portion of the rat liver, an infusion of bone marrow-derived progenitor cells was required for [liver regeneration](#). These results improve our understanding of how liver tissue can regenerate following damage and may shed light on liver complications in patients with suppressed bone marrow tissue.

More information: Liver sinusoidal endothelial cell progenitor cells promote liver regeneration in rats - [www.jci.org/articles/view/5878 ... 21e2857b21106f232595](http://www.jci.org/articles/view/5878...21e2857b21106f232595)

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