Tackling liver injury

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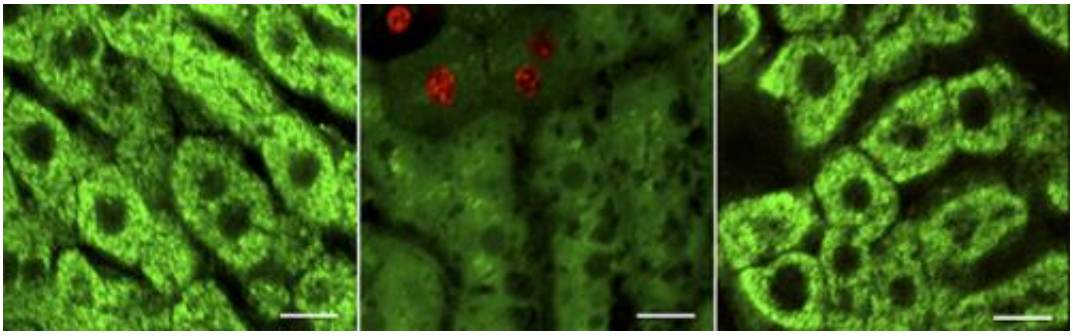

This image shows liver cells regenerated in mice treated with a new drug (right) compared with a control group (center) after partial liver removal. Healthy liver cells are shown at left. Credit: Marshall et al., 2014

A new drug spurs liver regeneration after surgery, according to a paper published in *The Journal of Experimental Medicine*.

Liver cancer often results in a loss of blood flow and thus oxygen and nutrients to the liver tissue, resulting in deteriorating liver function. Although the diseased part of the liver can often be surgically removed, the sudden restoration of blood flow to the remaining liver tissue can trigger inflammation—a process known as ischemia reperfusion injury (IRI). IRI results in part from the deposition of immune proteins called complement on the surface of liver cells, causing them to die and thus impairing liver regeneration.

Complement inhibitors effectively dampen IRI, but the benefits of this

approach come at a cost, as certain complement proteins are also required for liver tissue to regrow. A group of scientists at the Medical University of South Carolina now show that a novel complement inhibitor reduces complement-mediated liver cell death and actually stimulates post-surgery liver regrowth in mice. The novel inhibitor limited the deposition of complement proteins and promoted the division of new liver cells. Even after removal of as much as 90% of the liver, treatment increased survival from 0% in untreated animals to an impressive 70%.

The selectivity of this novel complement inhibitor, and its unexpected ability to promote liver regeneration, suggests that it might represent a new treatment strategy for a variety of liver injuries in humans.

More information: Marshall, K.M., et al. 2014. J. Exp. Med. DOI: 10.1084/jem.20131902

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