

LIVER

LIPOCALIN 2 AND STEATOHEPATITIS

Lipocalin 2 is a protein involved in innate immunity and protects against bacterial infection. However, according to results published in the *Journal of Hepatology*, in the context of alcohol-related liver injury, lipocalin 2 is associated with the development of steatohepatitis by recruiting inflammatory neutrophils to the liver.

Lipocalin 2 has been shown to be protective in a mouse model of NAFLD, but its function has not been well characterized in alcoholic steatohepatitis (ASH). The authors observed that patients with ASH had notably more lipocalin 2-positive neutrophils than patients with NAFLD or cirrhosis. The role of the protein in ASH was explored using wild-type and *Lcn2*^{-/-} mice.

Feeding wild-type mice ethanol for 2 weeks resulted in increased hepatic lipocalin 2 levels compared with mice not given ethanol. This observation was attributed to an elevated number of lipocalin 2-positive hepatic leukocytes. Separating out these immune cells, it was found that neutrophils had the highest expression of lipocalin 2 followed by monocytes and Kupffer cells.

Lcn2^{-/-} mice fed ethanol had less severe histological and biochemical indicators of liver injury than wild-type mice. The treated mice had similar levels of hepatic proinflammatory cytokines, but decreased expression of leukocyte-specific genes. The authors found that lipocalin 2 was required for neutrophil trafficking to the liver. Neutralizing lipocalin 2 with an antibody in wild-type mice prior to ethanol treatment protected against liver injury, as measured by serum alanine aminotransaminase levels.

Investigating the role of lipocalin 2 in neutrophils and modulating its effect in the liver are the future aims of the research group.

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