Introduction:
- Liver fibrosis and cirrhosis are important causes of morbidity and mortality and there are currently no approved medical therapies.
- While the pathogenesis of collagen deposition in the liver is complex, galectin-3 protein has been shown in knockout mouse experiments to be a critical protein in the fibrogenic process.
- Complex carbohydrate drugs with terminal galactose residues derived from plant sources bind to galectin-3 and have therapeutic potential.

Objective:
- To evaluate the efficacy of novel complex carbohydrate drugs that inhibit galectin proteins in the treatment of experimental liver fibrosis and cirrhosis.

Methods:
- Liver fibrosis was induced in rats with intra-peritoneal injections of thioacetamide (TAA).
- Rats were treated with either vehicle as a control or various concentrations of GM-CT-01 (galactomannan) or GR-MD-01/02 (galactoarabinogalactan-polysaccharide), which bind galectin-3.

Summary and Conclusions:
- Treatment with two galectin protein inhibitors with different chemical compositions, but having common structural elements, significantly reduced fibrosis and reversed cirrhosis in a toxic model of liver fibrosis.
- Treatment effects on fibrosis and cirrhosis were associated with a reduction in portal hypertension.
- In vitro cell culture studies (data not shown) did not indicate a primary effect on LX-2 cells, a model of activated stellate cells, although GM-CT-01 did reduce alpha smooth muscle actin protein in livers.
- The reduction in collagen, reversal of cirrhosis, thinning of fibrous septa, and the presence of incomplete septa following once weekly administration of four doses suggests that the mechanism of galectin inhibition in this model may be activation of fibrosis resolution pathways.