The parallel universe: microRNAs and their role in chronic hepatitis, liver tissue damage and hepatocarcinogenesis.

In recent years, enormous progress has been made in identifying microRNAs (miRNAs) as important regulators of gene expression and their association with or control of various liver diseases such as fibrosis, hepatitis and hepatocellular carcinoma (HCC). Indeed, many genes encoding miRNAs as well as their targets have been described and their direct or indirect link to the respective liver diseases has been investigated in various experimental systems as well as in human tissue. Here we discuss current knowledge of miRNAs and their involvement in liver diseases, elaborating in particular on the contribution of miRNAs to hepatitis, fibrosis and HCC formation. We also debate possible prognostic, predictive and therapeutic values of respective miRNAs in liver diseases. The discovery of liver disease related miRNAs has constituted a major breakthrough in liver research and will most likely be of high relevance for future therapeutic strategies, especially when dealing with hepatitis, fibrosis and HCC.