

Hepatic matrix metalloproteinase-10 exerts a hepatoprotective role after acute liver injury

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After injuries that lead to a loss of liver tissue a regenerative and reparative response is performed in order to restore an adequate hepatic mass. The remodeling of the extracellular matrix, accompanies the liver regeneration and when the reparative reaction goes awry in the setting of chronic liver injury, could be involved in the carcinogenic process (1,2). Following the damage, a provisional matrix is deposited, intended to be successively replaced, which has the function of stabilizing the lesional area and constitutes a support for guiding regenerating cells. Matrix metalloproteinases are increasingly recognized as important modulators of the matrix remodeling process. Matrix metalloproteinase-10 (MMP-10) has been implicated in the reparative process in other organs and has effects on the plasminogen system, which plays a fundamental role in liver repair (3). The hepatic expression of MMP10 in animal models of acute liver injury was tested in order to investigate the role of MMP-10 in liver repair and regeneration. The liver regeneration after two thirds partial hepatectomy (PH) and bile duct ligation (BDL) models were examined. Hepatic MMP-10 expression, analyzed by immunohistochemistry, western blot and qPCR showed a rise early after injury. In the MMP10-deficient mice a diminished and delayed resolution of necrotic lesions, enhanced fibrogenesis and a fibrinogen/fibrin and fibronectin compromised turnover were observed. These findings showed that the MMP10 expression plays a role in the hepatic wound healing response probably through its profibrinolytic activity.

References

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Key words

Metalloproteinase-10; liver repair and regeneration; hepatocarcinogenesis.