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Liver cirrhosis and hepatocellular carcinoma regulated by ERK signaling pathway

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Chronic liver injury leads to cirrhosis, the fourteenth most cause of death worldwide. Patients with liver cirrhosis could develop hepatocellular carcinoma, one of leading malignancies. The liver injury in long term and liver cirrhosis results in immune responses and recruit many immune cells. In CD4 subsets, regulatory T cells (Treg) and T helper 1 (Th1) cells inhibit liver cirrhosis whereas T helper 2 (Th2) cells promote the process. The balance between different subsets and their interaction with damaged livers could change immune tolerance as well as have effects on the degree of liver injury. Both WT and Erk2 deficient mice were compared under Choline Deficient Ethioine-supplemented diet (CDE diet), which leads to liver injury. It is obvious that WT and Erk2 deficient livers changed their color into brownish, suggesting liver damage occurred. Tissue sections were subjected to histological analysis by H&E and TRI staining. Our data suggested that Erk2 deficient livers have less degree of cirrhosis than WT livers upon liver injury. However, the relative body weight of WT and Erk2 deficient mice were similar. Erk2 deficient livers also have lower expression in cirrhosis-related genes-SMA and Col1a1 in comparison with WT. Furthermore, Erk2 deficient hepatic CD4 T cells were less activated and had less expression in IFN Therefore, it is possible that down-regulation of MAPK signaling could slow down the process of liver cirrhosis. In HCC cell line, inhibition of Erk could induce apoptosis but did not alter cancer stem cell marker of CD133. In conclusion, ERK signaling plays a role in regulation of liver cirrhosis and hepatocellular carcinoma.

Biography

Chiung-Fang Chang is currently a Researcher at Far Eastern Memorial Hospital, Taiwan. She graduated from National Taiwan University. She has received her PhD Degree in the Division of Biological Sciences at University of California, USA. Her expertise includes immunology, cell biology and molecular biology. Her current research projects focus on the cancer stem cells and immune responses in hepatocellular carcinoma.

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