Journal of cancer clinical research

ERK signaling-mediated molecules in the progression of liver cirrhosis and hepatocellular carcinoma

Chiung-Fang Chang

Far Eastern Memorial Hospital, Taiwan

Abstract

Liver cirrhosis is the fourteenth most cause of death worldwide. Aberrant apoptosis is associated with liver fibrosis and cirrhosis progression, even for the progression of hepatocellular carcinoma (HCC). The progression from long-term liver injury, liver cirrhosis to HCC is associated with liver damage, liver regeneration and immune responses. Targeting liver injury-dependent signaling pathways could help to alleviate liver cirrhosis and prevent HCC development. ERK signaling pathway plays an important role in cell proliferation, differentiation and regeneration. In this study, we investigate the role of ERK signaling pathway in the progression of liver cirrhosis and HCC in terms of hepatocytes as well as immune responses. Our results suggested that Erk2 deficient livers have less degree of liver cirrhosis than WT livers. However, the relative body weight and liver weight of WT and Erk2 deficient mice were similar. Cirrhosis-related genes such as alpha-SMA were down-regulated in Erk2 deficient livers. The enrichment GO and KEGG analysis of differential expression genes (DEGs) were identified for liver cirrhosis related events such as the calcium ion responses and ECM pathway. In addition, inhibition of ERK signaling pathway could induce apoptosis but did not alter cancer stem cell marker CD133 in HCC cells. ERK downstream molecule Egr1 expressed highly and lowly in HCC cells were subjected to the DEG analysis. Genes involved in hepatic fibrosis or hepatic stellate cell activation in the top canonical pathway was identified. Therefore, ERK signaling plays an important role to regulate the molecules in the progression of liver cirrhosis and HCC.

Biography

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

Citation: Chiung-Fang Chang, *ERK signaling-mediated molecules in the progression of liver cirrhosis and hepatocellular carcinoma*, Cancer Summit 2020, 3rd Global Expo on Cancer and Oncology Research, July 30, 2020, Page 02