Proteomic approaches to study cellular factors involved in hepatitis C virus infection

Lioa M-H, Tseng C-P, Yu J-S, Cheng J-C*（鄭如茜）

Hepatitis C virus (HCV) infection induces a high rate of chronic liver diseases including chronic hepatitis, liver fibrosis and cirrhosis. It has been demonstrated that activation of hepatic stellate cell (HSC) plays a pivotal role in HCV-mediated hepatic fibrogenesis. In this study, we found that HSC was activated by the conditioned medium derived from the HCV replicon cells. To elucidate the mechanism underlying HSC activation, the secretomes for the control and HCV replicon cells were compared using the two dimensional polyacrylamide gel electrophoresis followed by MALDI-TOF analysis. A novel protein (designated as C1) was identified that was specifically secreted into the conditioned medium from the HCV replicon cells. Overexpression and RNAi knockdown experiments revealed that C1 plays a role in HCV pathogenesis through regulation of HCV RNA and protein expression. In addition, C1 neutralization antibody inhibited HCV replicon cell conditioned medium-mediated HSC activation. Taken together, a novel secreted protein is identified to modulate HCV infectivity and HSC activation that can contribute to our understanding for the underlying mechanism in HCV-mediated hepatic fibrogenesis.