

Comparison of different methods of rat hepatic stellate cells isolation, labeling and transplantation

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Abstract

Nowadays more and more attention is turned to hepatic stellate cells (HSC) and their role in liver regeneration. Nonetheless there are several methodological questions, for example, methods of HSC isolation, their labeling and ways of transplantation. In this work we compared two different methods of HSC isolation: collagenase-pronase liver perfusion with further Histodenz density gradient centrifugation and method of Seglen for isolation of hepatocytes associated with HSC. We also analyzed diverse methods of cells labeling: membrane fluorescent labels PKH26 and with gene of green fluorescent protein (GFP), that could be get into the cells by electroporation, with chemicals like TurboFect or by adenovirus. Then cells were transplanted into rats in two ways: into lien and into system of portal vein. According to our results, we able to conclude that collagenase-pronase liver perfusion with further cells gradient centrifugation in Histodenz is better for HSC isolation than method of Seglen, the most optimal method for cells labeling is with adenovirus, expressing the GFP gene, for HSC transplantation - Transplantation into system of portal vein. © Human stem cells institute, 2013.

Keywords

Adenovirus, Cells isolation, Cells labeling, Green fluorescent protein, Hepatic stellate cells, Pkh26, Transplantation