the function of miRNAs, expressions of which significantly differ between tumor and not-tumor tissues, we performed in vitro study using three immortalized human HCC cell lines (Huh-BAT, SNU475 and SNU761). MiRNA expressions were up-and down-regulated by its mimics and inhibitors, respectively. Cellular proliferation was measured by MTS assay.

Results:  Out of 449 miRNAs assayed, we identified 21 miRNAs differentially expressed in HCC tissues by the false discovery rate procedure. Among them, high expression of miR-345 was significantly associated with longer disease-free survival ($p=0.01$). In vitro study showed that inhibition of miR-345 in cultured HCC cells significantly increased HCC cell proliferation, while enhancement of miR-345 expression significantly decreased HCC proliferation (both $p<0.05$). In addition, enforced miR-345 expression caused multidrug resistance-associated protein 1 down regulation, whereas anti-miR 345 induced its up-regulation.

Conclusions: These results indicate that miR-345 expression in HCC tissues may predict a low risk of HCC recurrence. In addition, the modulation of miR-345 expression may be useful as an anti-proliferation strategy for HCC treatment.

Keyword: miR-345, Hepatocellular carcinoma, Recurrence, Proliferation, Multidrug resistance–associated protein 1

PO-30
Establishment of hepatitis C virus in vitro infection system using differentiated mesenchymal stem cell (MSC) to hepatocyte-like cells

Jung Eun Choi1, Wonhee Hur1, Kwang Soo Lyoo1, Sung Woo Hong1, Sung Woo Kim1, Yong Ki Lee1, Chang Wook Kim1,2, Seung Kew Yoon1,2
1WHO Collaborating Center of Viral Hepatitis & 2Department of Internal Medicine College of Medicine, The Catholic University of Korea, Seoul, Korea

Background: Since HCV replicon system was first developed in 1999, it has been used for study of HCV replication and antiviral drug screening. However, this system has a limitation to allow a broad spectrum of HCV strains. Recently, adipose tissue-derived MSC as adult stem cell has been widely used for differentiation into mesodermal-linage cells. In this study, we characterized functional differentiation and investigated infection ability of HCV in differentiated hepatocyte-like cells (DHL) for establishment of HCV in vitro infection system.

Methods: Adipose tissue-derived MSCs were differentiated into hepatocyte-like cells using conditional media. Then, the cells were evaluated whether there were the characteristics of hepatocyte using RT-PCR, immunocytochemistry, Periodic acid-Schiff stain. Next, we confirmed expression of HCV candidate receptors by immunocytochemistry. Finally, we infected DHL with patient’s sera and confirmed the existence of HCV particle using transmission electron microscopy (TEM) in infected DHL.

Results: Expressions of mRNA and protein of albumin were highly expressed in DHL compared to undifferentiated MSCs. However, the expression of the mRNA cytokeratin 7 was markedly reduced in DHL compared to undifferentiated MSCs. Next, glycogen storage was elevated in DHL compared to undifferentiated MSCs. Also, expression of HCV candidate receptors was detected in DHL. Moreover, existence of HCV particle was confirmed using TEM in infected DHL.

Conclusions: Our results suggest that adipose tissue-derived MSCs has a special capacity for hepatocyte differentiation and establishment of in vitro culture system of HCV using DHL may be promising tool to study the mechanism of HCV replication, development of vaccine, anti-viral drug screening and in vivo chimeric human liver model for HCV.

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Keyword: Hepatitis C Virus, Mesenchymal Stem Cell, in Vitro Culture System