中文題目:不同C型肝炎病毒量之感染細胞和宿主之間抗性的影響

英文題目: The effects of different hepatitis C viral loads on host resistance by a cell sorting model

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Objectives: Hepatitis C virus (HCV)-induced hepatic stress has been implicated in hepatic inflammation which might be associated with increased oxidative DNA damage. The HCV infection and replication varies among individual hepatocytes with the median proportion of HCV-infected hepatocytes found as high as 40% in chronic HCV infection patients by identifying hepatocytes with HCV viral RNA. The study aimed to investigate the effect of different HCV viral load on host DNA damage by a cell sorting protocol we developed..

Methods: To investigate the effect of viral load on gene alternation in HCV-infected cells, we used two infectious *in vitro* modes to distinguish HCV intracellular high viral load (HVL) and low viral load (LVL) cells: (1) JFH1-EYFP viral florescence intensity; and (2) the intracellular HCV-core protein staining to sort high and low viral load cells. We determined the lowest signal intensity of 20% population for HCV-low infected cells and highest signal intensity of 20% population for HCV-high infected cells.

Results: The cell sorting efficiency was confirmed by high expression of HCV polyprotein and signal intensity of the sorting efficiency is 94% on HCV low-viral load cells and is 89% on HCV high-viral load cells. The viral load result demonstrated that the high-viral load cells presented a 6-folds viral load compared to the low-viral load cells. To examine the expression of DNA damage-related genes by qPCR array, the result demonstrated that hat intracellular viral loads drive cellular DNA damage levels and damage-related gene suppression.

Conclusions: We have established a cell sorting protocol to study the effects of viral loads in HCV-infected cell populations which demonstrated different capacities of damage-related gene expression between HVL and LVL cells. Our findings highlight the important role of viral load in the study of gene expression in HCV infection-associated research.

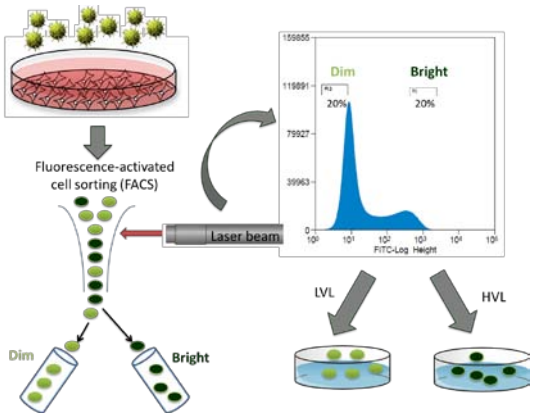

Figure 1. Schema of fluorescence-activated cell sorting by HCV viral loads.

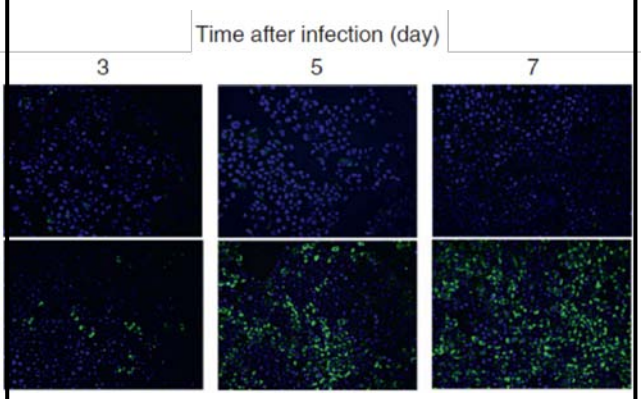

Figure 2. Infectious JFH1-EYFP with robust virus production capability.