and compared them with non-HAV-specific plasmablasts. Non-HAV-specific plasmablasts have the phenotype of Ki-67low/CD138high/CD31high/CD38high as compared with HAV-specific plasmablasts, demonstrating that non-HAV-specific plasmablasts have a bone marrow (BM) plasma cell-like phenotype while HAV-specific plasmablasts have a typical phenotype of circulating plasmablasts.

Conclusions: These data suggest that non-HAV-specific plasmablasts are mobilized ASCs from the BM niches of plasma cells, whereas HAV-specific plasmablasts are newly generated ASCs. In this study, we demonstrated that pre-existing BM plasma cells are released to circulation during AHA and contribute to the non-virus-specific ASC response and IgM secretion.

Keywords: Plasmablast, Antigen specificity, Immunoglobulin M, Hepatitis A virus, Acute hepatitis A

O-074

Osthol Attenuated Liver Steatosis via Decrease Liver De Novo Triglyceride Synthesis not by Insulin Resistance: Multifaceted Effects of Cnidium Monnierii Extract

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Background: Osthol is a coumarin compound isolated from the fruit of Cnidium monnieri. Previous studies showed osthol have anti-inflammatory effects on various diseases. Nowadays nonalcoholic fatty liver disease (NAFLD) has been believed as a consequence of a ‘multi-hit’ process. However, there is no multi-faceted and comprehensive evaluation about effects of osthol. The current study evaluated effects of osthol on intrahepatic fat synthesis, β-oxidation, inflammation, and insulin resistance by multifaceted-analysis.

Methods: SD rats (n=30) were divided into control, NFD, and osthol groups. NAFLD and osthol groups were fed high-fat diet for 14 weeks. After 8 weeks osthol group was supplemented orally with osthol 20mg/kg. Oral glucose tolerance test (OGTT) was performed. Immunohistochemical (4-HNE, F4/80) and H&E staining were performed on all tissue samples. SREBP1c, FAS, and SCD-1 mRNA expression were measured to assess intrahepatic fat de novo synthesis. PPAR-α, CROT, MCP-1, IRS-1, and IRS-2 expressions were assessed with real time PCR analysis. Protein levels of inflammatory cytokines were determined by western blotting.

Results: In the group treated with PA plus LPS, there was a significantly increase in several inflammasome gene expression (including NLRP3, NLRP6, NLRP10, caspase-1) versus the control, PA or LPS-treatment group (P<0.05). NLRP1 and NLRP4 mRNA expression levels were not affected by such stimulation. Inflammasome activation was indicated by higher mature IL-1β and caspase-1 protein levels in the PA plus LPS treatment group but not in the control group. All of the above effects of PA and LPS were attenuated by the PPAR-δ agonist GW 501516 in a dose dependent manner.

Conclusions: These results demonstrate that PPAR-δ agonist attenuates PA-induced inflammation through suppressing several inflammasome activation, caspase-1 activation and IL-1β cleavage. PPAR-δ agonist may serve as a potential therapeutic agent for NASH.

Keywords: Inflammasome, Non-alcoholic steatohepatitis, Palmitic acid, Peroxisome proliferator-activated receptor-delta
Results: H&E staining revealed that compared to NASH, osthol group showed significantly decreased intrahepatic fat (39.4% vs. 21.0%, P=0.021). SREBP-1c expression of NAFLD group increased compared to control group (P=0.0001), while osthol treatment decreased SREBP-1c expression (P=0.0059). In osthol group, intrahepatic FAS and SCD-1 expression which are down stream of SREBP-1c decreased significantly compare to NAFLD Group. PPAR-α expression of osthol was also significantly higher than NAFLD (P=0.0147). However, there was no statistically difference in expression of carnitine octanoyltransferase which is marker of β-oxidation. IRS-1 and IRS-2 expression which are involving in insulin signal pathway and AUROC of OGTT were not different in NAFLD and osthol group. There was no significant difference in periportal inflammation, intrahepatic fibrosis, and kupffer cell number between the groups.

Conclusions: Osthol treatment attenuated liver steatosis via decreasing liver de novo triglyceride synthesis and had nominal effects on insulin resistance and liver inflammations.

Keywords: NASH, Osthol, Triglyceride synthesis, Insulin resistance

**ORAL O-075**

**Downregulation of MicroRNA-451 Regulate Inflammation through the NF-κB Pathway in High Fat Diet Induced Mice**

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Background: MicroRNAs (miRNAs) play critical roles in diverse biological cellular processes including non-alcoholic fatty liver disease (NAFLD). In the present study, we investigated the role of miR-451, which was identified as a target gene for NAFLD, on the molecular mechanisms underlying inflammatory events during high fat diet (HFD)-induced NAFLD.

Methods: Microarray and stem-loop RT-PCR were performed to detect dysregulated miRNAs in mouse models of high fat diet (HFD)-induced NAFLD. After then, we searched the direct miRNA targets through performing pair-wise correlation coefficient analysis on expression levels of miRNAs, and compared the results with predicted miRNA targets from TargetScan5.1. Here, the role of miR-451 in FFA-induced inflammation was investigated in hepatocytes. The following factors were examined: (1) miR-451 expression levels in HepG2 cells treated with palmitate, (2) the palmitate-induced protein synthesis of interleukin-8 in miR-451 mimic or miR-NC-transfect-}

ed steatotic HepG2 cells, and (3) the expression of nuclear factor-κB (NF-κB) in miR-451 mimic-transfected steatotic HepG2 cells by real time RT-PCR, luciferase reporter assays and Western blotting.

Results: We identified 7 new miRNAs-target gene pairs by bioinformatics analysis and further confirmed their expression by stem-loop RT-PCR in murine models of HFD-induced NAFLD. Among those genes, we found that miR-451 expression was downregulated in HFD-induced mice. We also found that Cab39 is the direct target of miRNA-451 in steatotic HepG2 cells. Mechanistically, we demonstrated that AMPK activation through Cab39 as a direct target of miRNA-451 inhibits NF-κB transactivation induced by fatty acid palmitate in HepG2 cells. Consequently, overexpression of miRNA-451 in steatotic HepG2 cells suppressed palmitate-induced proinflammatory cytokine IL-8 expression.

Conclusions: These results demonstrated the miRNA/mRNA profiles dysregulated in HFD-induced NAFLD mice model, and suggest that miRNA-451 may play an important role in the pathogenesis of NAFLD.

Keywords: MicroRNA, Non-alcoholic fatty liver disease, Inflammation, Nuclear factor-κB

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**ORAL O-076**

**Associations between Intakes of Individual Nutrients or Whole Food Groups and Non-alcoholic Fatty Liver Disease among Korean Adults: A Nationwide Multicenter Case-Control Study**

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Background: Dietary factors are closely associated with the risk of non-alcoholic fatty liver disease (NAFLD). Asian and Western diets differ in energy-nutrient composition, fatty-acid composition, and main nutritional sources; therefore, the implications would be limited if the Western-oriented study results were applied to Asian patients.

Methods: In total, 348 subjects were recruited from 5 participating hospitals. Information on socio-demographic character-