Therapeutic plasma exchange restore expression profile of monocytes in antiphospholipid syndrome

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Antiphospholipid antibody syndrome (APS) is an autoimmune disease that is characterized by vascular thrombosis and recurrent miscarriages. Persistence presence of antiphospholipid antibodies (aPL) is well linked to the disease pathogenesis, however the precise mechanism of aPL-mediated thrombus formation remains unknown. Recent studies have implicated critical role of monocytes activation in hypercoagulable state in APS. Our study was aimed to determine the impact of plasma exchange therapy (PE) on transcriptional state of monocytes in APS patients. This treatment modality is accepted method for treatment of pregnant women with thrombotic complications or autoimmunity, but rarely used in APS. mRNA levels of eleven selected genes were assessed in monocytes from nine healthy subjects and eleven APS patients with recurrent miscarriages before/after PE course, using qRT-PCR method. Baseline expression of IL-1β, IL-6, IL-23, CCL2, TLR2, and STAT3 was significantly down-regulated and CXCL10 up-regulated in APS monocytes as compared with healthy cells. PE therapy resulted in increased IL-1β, IL-6, IL-23, CCL2, P2X7, TNFα and decreased STAT3 mRNA levels in APS monocytes. Comparison of gene expression profiles in APS patients after PE and healthy subjects showed that up-regulated mRNA levels of APS monocytes tended to return to normal ranges. Furthermore, PE therapy counterbalanced the expression levels of CCL2 and CXCL10 which levels are indicative of Th1/Th2 balance. Thus, our results showed that peripheral blood monocytes from APS patients characterized by distinct profile of gene expression. PE therapy exerts its effect by normalizing transcriptional activity of APS monocytes.

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Long noncoding RNA-ABHD11-AS1 in gastric juice using as a new biomarker for screening gastric cancer
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Aim: Long noncoding RNAs (lncRNAs) play vital roles in tumorigenesis and tumor progression. However, the clinical diagnostic values of most lncRNAs in the screening of gastric cancer are largely unknown. The aim of this study is to investigate whether gastric juice ABHD11-AS1, a lncRNA, can be a potential biomarker for screening patients with gastric cancer.

Methods: Total of 173 tissue samples and 130 gastric juice samples from four stages of gastric tumorigenesis were first collected and its ABHD11-AS1 levels were detected by real-time reverse transcription-polymerase chain reaction. Then the relationships between ABHD11-AS1 levels and clinicopathological factors were further investigated. Finally, receiver operating characteristics (ROC) curves were constructed and ABHD11-AS1’s diagnostic value was determined.

Results: ABHD11-AS1 levels in gastric cancer tissues were significantly higher than those in other tissues. And its levels in gastric juice from patients with gastric cancer were significantly higher than those from cases of normal mucosa or minimal gastritis, atrophic gastritis and gastric ulcers. Its levels in gastric juice from patients with gastric cancer was associated with gender, tumor size, tumor stage, Lauren type and blood CEA levels. The area under the ROC curve was up to 0.653.

Conclusion: Gastric juice lncRNA-ABHD11-AS1 may be a potential biomarker for screening gastric cancer.

Tobacco mosaic virus-based vectors displaying conserved Influenza antigens: host range, tissue localization and peculiarities of joint infections
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Recombinant TMV-based viruses containing different versions of conserved Influenza M2e epitope on the surface of chimeric particles were created by our group previously (Petukhova et al., 2013, 2014). They provide appropriate model system for studying some poorly known aspects of long-distance movement and host-virus interactions. Accumulation of coat proteins synthesized in systemic and inoculated leaves during infections of recombinant TMV-M2e-cys, TMV-M2e-ser and TMV-M2e-ala viruses was determined. For Nicotiana tabacum and Chenopodium quinoa the long-distance movement via vasculature was quite efficient. None of the viruses was capable of infecting Nicotiana rustica systemically. Cuts of inoculated and upper leaves with clear symptoms of TMV-M2e infections (14 days post inoculation) were stained with Toluidine blue and examined using transmitted light microscopy. We did not observe significant morphological differences between these mutants in conducting tissues. Histochemical analysis of TMV-M2e viruses’ localization with M2e-specific antiserum in major and minor veins as well as mesophyll was per-