

Abstract of Presentation

Note: This paper should be typed in “Times New Roman” of 12pt.

ANTI-INFECTIOUS EFFECT AND ACTIVE INGREDIENTS OF KAMPO (JAPANESE HERBAL) MEDICINES

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Abstract :

Many of the diseases are multi-factorial and still difficult to treat with only modern medicine. However, Kampo medicines, which contain multiple ingredients, have a possibility to improve the symptoms, probably by affecting multiple target sites and recovering disturbance of whole body systems. Elucidations of action mechanism and active ingredients will be useful for the evidence-based medicine and quality control of Kampo medicines. Present paper introduces our studies on anti-infectious effect and active ingredients of Kampo medicines.

Shoseiryuto (SST: Xiao-Qing-Long-Tang) has been used for the treatment of allergic bronchial asthma and common cold etc., clinically. Oral administration of SST reduced the influenza virus titer in the nasal wash in the infection model mouse, and increased antiviral IgA antibody in the nasal and bronchoalveolar washes. Our study suggests that oral administration of SST activates T cells in Peyer's patch lymphocytes, and stimulates the production of anti-influenza virus IgA antibody in nasal lymphocytes through common mucosal immune system. SST also showed oral adjuvant activity for nasally administered influenza vaccine, and enhanced antiviral IgA antibody level in nasal and bronchoalveolar washes. The activity was caused by the combination effects of two stereoisomers of 9,12,13 trihydroxy-10*E*-octadecenoic acid (pinellic acid) in one of component herbs, *Pinellia ternata*.

Kampo medicines are generally taken orally, therefore their biological effects are expected to express through intestinal immune system. Peyer's patches play important roles as an inductive lymphoid organ of the intestinal immune system. The intestinal immune system not only contributes to the defense system of the mucosa, but also regulates the systemic immune system. Therefore the regulative molecules of the intestinal immune system have potential as new immuno-modulators of both the mucosal and systemic immune systems.

Potent Peyer's patch mediated intestinal immune response was observed in the polysaccharides from rhizomes of *Atractylodes lancea* and leaves of *Astragalus mongholicus*. Active polysaccharides from *A. lancea* were characterized to be mainly arabino 3,6-galactans (ALR-5IIa-1-1).

Specific carbohydrases digestion with ALR-5 IIa-1-1, suggest that the attachment of side chains to β -D-(1 \rightarrow 3)galactan backbone like glycocluster and the length of β (1 \rightarrow 6)-galactosyl chains are responsible for the activity. The importance of the glycocluster structure to the activity was further estimated by using synthetic oligosaccharide glycoclusters. Present observations suggest that the combination effect and high molecular weight polysaccharides are also important for the efficacy of Kampo medicines.

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