Analysis of the model for food allergy sensitized via skin to use mice

Hiroataka Yamashita^{1,2}, Yuri Tanaka¹, Hiroki Matsuhara¹, Hiroyuki Tanaka^{1,2}, Naoki Inagaki^{1,2}

¹Lab. Pharmacol., Dept. Bioactive Mol., Gifu Pharm. Univ., ²United Grad. Sch. Drug Disc. Med. Inform. Sci., Gifu Univ.

Food allergy is defined as "a phenomenon in which adverse reactions are caused through antigen-specific immunological mechanisms after exposure to a given food". The number of patients with food allergy is increasing in the last decades. Food allergy develops by failure of acquiring oral tolerance for the foods. However the reasons that acquiring oral tolerance is inhibited are unclear. Previously, we made the models of murine food allergy and oral tolerance for the food. In the models, we used ovalbumin (OVA) as a food antigen. OVA mixed with alum (OVA/alum) was injected into mice intraperitoneally for sensitizations, and the mice were challenged by oral treatment with OVA in the food allergy model. As indexes for food allergy, drop of body temperature, fecal condition, and the level of OVA-specific IgE in blood were estimated. In oral tolerance model, prior oral treatment with OVA prevented the development of food allergy. In recent years, it is reported that food allergy is associated with exposure of food antigens via skin. In this study, we made the model of food allergy sensitized via skin. Additionally, we researched whether prior oral treatment with OVA prevented the development of food allergy. As results, pre-treatment with OVA in the model of food allergy by skin exposure to OVA was able to suppress the indexes of food allergy partially.