RESEARCH REPORT - No. 1506 FY 2015–2016

Title of research project	Establishment of a new assay system for IgE-allergenicity in foods
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【Abstract】

Egg, milk and wheat are the most common food allergens in children among different countries around the world; however the mechanisms why these foods are highly allergenic remain uncertain. The main purpose of this study was to clarify such mechanisms and to establish a new assay system for IgE-allergenicity in different foods. Using monocytic cell line-derived cultured dendritic cells, we found that some cytokines induced typical activation marker molecules, whereas some other cytokines downregulated the biological activity of lysosomal enzymes in dendritic cells. Using mouse epicutaneous sensitization model, we found that proteins with resistance to enzymatic digestion tend to be highly allergenic than those with non-resistance. In addition, some food additives have allergenic activity. In pe-diatric patients with definitive food allergy, about 90% of them have obvious history of atopic dermatitis/eczema, suggesting that these patients were sensitized through eczematous skin. Children with history of anaphylaxis do not always have high IgE titers against causal foods, suggesting that there must be some other factors rather than the amount of specific IgE antibody.