

## Pathomechanism of IgE-mediated allergies

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The complexity of allergic disease is expressed in multiple clinical phenotypes including allergic asthma, atopic dermatitis, food allergy, and anaphylaxis. The structural properties that distinguish allergenic and non-allergenic proteins have not yet been identified. In order to develop curative immunotherapy of allergic disease, it is crucial to understand the pathogenic mechanisms for each clinical phenotype.

Evidence has accumulated that microbiota dysbiosis is associated with the pathogenesis of allergic disease. Changes in environment and nutrition result in dysbiosis of the skin, gut, and lung microbiota, and contribute to onset and deterioration of allergic disease. There is currently great interest in food components, e.g. dietary fibers, which can restore the microbiota to a state associated with health and induce beneficial immune modulation to treat inflammatory diseases. We will investigate the effect of plant-derived dietary fiber on gut microbiome, metabolome, and immune regulation for treatment of allergic disease.