

EDITORIAL

Allergens at Asian Homes

More than two thousand molecules, mostly proteins, have been characterized as allergens, which bind to IgE antibodies subsequently eliciting allergic responses. Household allergens play an essential role in respiratory allergy. Multiple allergens are found throughout the house but the level of an individual allergen may differ by room and area. A dose-dependent association between allergen density and allergic symptoms has been established. Exposure to the allergens in the bedroom and living room are commonly relevant to trigger sensitization and morbidity. Component-resolved diagnosis, which utilizes purified native or recombinant allergens may predict symptom prognosis, is a hot topic in the field of molecular allergology [1]. With industrialization and westernization of Asian countries, allergic disorders are being increased. Allergen science originated from western countries and most of the allergens imported to Asian countries, which do not reflect the differences between continents, are produced from Europe and American companies.

However, there are some differences in the flora, fauna, custom, and culture including cooking, clothing, and habitats. Interestingly, it has been proposed that the natural history of allergic disorders in Asia might fundamentally differ from western countries. Thus, main causes of allergic diseases are peculiar in Asia. For example, pollens (from the tree, weed, and grass), and domestic or stinging or biting insects, as well as various foods from plants and animals are often native to Asian countries and are not found or are rare in western countries. Sometimes, different breeds and polymorphism may endow different allergenicity even among the same species. Hence, some of the allergy diagnosis in Asian countries depends inevitably on cross-reactivity with similar allergens.

Therefore, this series of reviews summarized the molecular properties of indoor allergens with an emphasis on the differences between western and Asian countries. Household arthropods are a major source of indoor aeroallergens. Firstly, house dust mite, *Dermatophagoides farinae* and not *D. pteronyssinus*, is the major producer of allergens [2]. Secondly, storage mite, *Blomia tropicalis*, is a major source of dust allergens in subtropical and tropical regions [2]. Among the common household pests, the cockroach is a potent producer of inhalant insect allergens [3]. Other domiciliary insects such as ant, mosquito, mayfly, housefly, silkworm moth, silverfish and termite have been documented as the source of indoor allergens [4].

Sensitization to insects can be elicited not only by stinging but also by biting [5,6]. Many different species of worms and bugs are being consumed and serve as an important source of protein. However, some of the edible insects cause allergic responses [7]. Some proteins from companion animals are also of allergenic importance. However, there are some differences in the preferred breeds among countries.

Housing features, microenvironments with excess moisture and occupants' behavior are the main facilitating factors not only for the growth and persistence of residential fungi but also its exposure profiles. Fungal allergens are distributed by air-borne spores and fungal fragments, which are to be investigated in more detail [8]. Topics on IgE reactive molecules from parasites and perspectives on recombinant allergen vaccines were included to provide better insight on the molecular properties of allergens [9, 10]. We hope the next issue would cover the topics on the outdoor allergens in Asia.

Hopefully, this series of reviews can provide an insight into molecular properties which endow allergenicity to certain antigens. In addition, understanding of allergenic properties can facilitate the development of improved allergy diagnostic and therapeutic reagents.

Keywords: Allergen, component-resolved diagnosis, cross-reactivity, molecular allergology.

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Kyoung Yong Jeong*(Guest Editor)*

Department of Internal Medicine,
Institute of Allergy,
Yonsei University College of Medicine,
Seoul 03722,
Korea
E-mail: JEONGKY@yuhs.ac

Anchalee Tungtrongchitr*(Guest Editor)*

Department of Parasitology,
Faculty of Medicine Siriraj Hospital,
Mahidol University,
Bangkok 10700,
Thailand
E-mail: anchalee.tun@mahidol.ac.th