



Guest Editor's Introduction

Recombinant Allergen Methods



IgE-associated allergies affect more than 30% of the population world-wide and therefore require the development of adequate forms of diagnosis and therapy [1]. Allergic manifestations comprise a variety of symptoms ranging from mild forms, including hay-fever, severe, disabling reactions such as bronchial asthma, food allergies and even death in case of anaphylactic shock. Exactly 25 years ago, the first DNA sequences coding for allergens, the disease-causing molecules, were published [2–4]. The application of molecular cloning for the analysis of allergen structures brought about a rapid progress in the field of allergen research and characterization [5]. A few years later, the first publications appeared which demonstrated that recombinant allergens could be used for molecular allergy diagnosis [6].

In the meantime, it has become obvious that molecular diagnosis provides a huge wealth of diagnostic information and possibilities which are revolutionizing the way we are diagnosing allergy [7]. Not only has diagnosis of allergies has made a transition from the use of undefined allergen extracts towards molecular analysis, but also new forms of specific immunotherapy based on recombinant allergens have become available. The first immunotherapy trial performed with recombinant allergen derivatives was published almost ten years ago [8] and now we are beginning to see numerous clinical trials which give rise to the hope that new, safer, more efficient and patient-tailored forms of treatment will become available for allergic patients [9]. This issue gives an overview and update on the exciting progress made regarding the molecular and structural characterization of allergens [10]. Furthermore, it contains comprehensive reviews regarding the growing number of recombinant allergens from various sources, including plant and animal-derived foods [11–12], pollen [13–14], house dust mites [15], cockroaches [16] and pets [17].

Two further articles are dedicated to recombinant allergen-based *in vivo* and *in vitro* diagnosis [18–19]. Especially, the use of micro-arrayed allergens which allows testing with only a few microliters of serum holds great promise for allergy diagnosis in children and thus to understand the evolution of the allergic sensitization early in life and its progression towards disease by studying birth cohorts [20]. This may allow developing new forms of allergy prevention strategies for combating the spread of the allergy epidemic. The editors of this issue thank all the contributors and hope to stimulate the readers' interest in recombinant allergen-based technologies and their various applications.

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Rudolf Valenta
Heimo Breiteneder

E-mail addresses: rudolf.valenta@meduniwien.ac.at (R. Valenta),
heimo.breiteneder@meduniwien.ac.at (H. Breiteneder)