Allergen immunotherapy

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We are delighted to announce the release of our latest themed issue, which highlights developments in the field of allergen immunotherapy.

During the last few decades, there has been an increase in the prevalence of allergies and it has been predicted that by 2025, half of the entire EU population will be affected [1]. Allergen-specific immunotherapy is currently being explored as a potential preventive treatment for allergic reactions elicited by substances such as pollen, house dust mites and peanuts [2]. The aim of immunotherapy has been to direct the immune response towards cellular immunity and decrease the production of specific IgE antibodies, thus reducing the symptoms of allergy for the sufferers [3].

This special focus issue covers the latest advances in allergen immunotherapy covering both environmental and food allergies, with the aim of directing the improvement and optimization of immunotherapy for allergy specific treatment.

Land and Chen begin the issue with their Editorial discussing whether consuming baked products containing milk and eggs could be used as an effective alternative to oral immunotherapy in individuals with milk and egg allergies [4]. In a Preliminary Communication, Gamazo *et al.* develop a model of peanut-induced anaphylaxis to study immunotherapy approaches and examine the effect of immunogenic peanut extract encapsulated polymeric nanoparticles on anaphylaxis and immunological outcomes [5]. Ciprandi *et al.* investigated evaluate the relationships between climate and house dust mite allergic sensitization in Italy in their Short Communication article [6]. We have several Original Research Articles in this issue, the first from Mösges *et al.* where the effect of different doses of carbamylated monomeric allergoid tablets in patients with grass allergy is analysed [7]. Chaudhuri *et al.* present data indicating that allergen immunotherapy decreases the sensitivity to apoptosis of Treg cells via extrinsic, intrinsic and perforin/granzyme pathways [8]. Schulze *et al.* examine the predictive value of *in vitro* IgE tests in children and adolescents with allergic asthma and sensitization to house dust mites [9]. Bahceciler *et al.* examine the effects of sublingual immunotherapy in asthmatic children [10]. In their Special Report, Incorvaia *et al.* explore allergen-specific immunotherapy for birch-apple syndrome sufferers [11]. Molnár *et al.* summarize ragweed specific sublingual immunotherapy strategies and challenges in their 3-year study [12]. Finally concluding the issue is a Review by Pisi *et al.* evaluating the role of microbiome in shaping the immune system as a possible causative mechanism leading to asthma and potential therapeutic approaches [12].

In summary, this special issue highlights the promising advances being made in the allergen immunotherapy field, challenges that need to be overcome to ensure continuing progress, as well as future directions. We hope that the contents of this issue will provide a valuable resource for the research community and that the expert perspectives presented will help drive this exciting area forward.

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