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Allergy immunotherapy: the future of allergy treatment

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Keywords: allergic respiratory disease; allergy immunotherapy; allergen immunotherapy; disease modification; prevention.
Teaser: Allergy represents a significant and increasing health problem worldwide. Allergic symptoms have a negative impact on patients' lives and societal economy. Allergy immunotherapy should be included in optimal treatment strategies.

Author biographies

Jørgen Nedergaard Larsen
Jørgen Nedergaard Larsen received a MSc in biochemistry and a PhD in molecular biology from the University of Copenhagen in 1991[LM1]. He was among the first to study recombinant allergens and was working in the research team behind the first 3D structure of an important inhalation allergen, the birch pollen major allergen, in 1996. Jørgen has been on international committees relating to allergen nomenclature, and allergen standardization and immunotherapy. He is a co-author of 37 original articles and 27 reviews and book chapters. Jørgen is currently a senior scientific communication manager with ALK.

Louise Broge
Louise Broge received a MSc in inorganic chemistry from the University of Copenhagen in 1997 and a PhD in bioinorganic chemistry from the Royal Veterinary and Agricultural University in 2003. After a period in academia studying model systems of metalloenzymes and teaching general and physical chemistry, Louise was employed by ALK in 2007, where she has been involved in the clinical development of SLIT tablets for several allergen species, in particular the paediatric programmes. She is currently a senior medical writer with ALK.

Henrik Jacobi
Henrik Jacobi qualified with a degree in medicine from the University of Copenhagen in 1993. In 1995, he took up a research position at the Allergy Clinic and the Laboratory of Medicinal Allergology at the National University Hospital in Copenhagen, Denmark, where he did clinical as well as experimental research. Henrik joined ALK in 2000 as a senior scientist in the research department. In 2001, Henrik was promoted to be head of this department and, in 2003, he was appointed executive vice president for research and development at ALK. Henrik is the co-author of several text-book chapters and 22 original articles on allergy and immunology.

Allergic respiratory disease represents a significant and expanding health problem worldwide. Allergic symptoms, such as asthma and hay fever, cause sleep impairment and reduce school and work performance. The cost to society is substantial. Allergen avoidance and pharmacotherapy cannot control the disease. Only allergy immunotherapy has disease-modifying potential and should be included in optimal treatment strategies. Allergy immunotherapy was first administered as subcutaneous injections and has been practiced for the past 100 years or so. Recently, tablet-based sublingual allergy immunotherapy (SLIT) was introduced with comprehensive clinical documentation. SLIT tablets represent a more patient-friendly concept because they can be used for self-treatment at home.

Introduction

Respiratory allergic disease represents a significant health problem in both developed and developing countries [1]. During the past four decades, a dramatic increase in the prevalence of allergic disease has occurred, and respiratory allergic disease is now the most common chronic disease among adolescents and young adults [2,3]. The increase is especially problematic in children because of the prognosis of chronic and frequently aggravating disease [4].

The clinical manifestations of allergic disease include: asthma; rhinitis; conjunctivitis; anaphylaxis; drug-, food-, and insect allergy; eczema; urticaria (hives); and angioedema. Respiratory manifestations are the most prevalent, affecting up to 30% of the general population [4]. According to statistics from the World Health Organization (WHO), hundreds of millions of people in the world have rhinitis and it is estimated that 235 million people have asthma (http://www.who.int/mediacentre/factsheets/fs307/en/index.html). Asthma is a chronic inflammatory disorder of the airways associated with airway hyper-responsiveness and airflow obstruction (http://www.ginasthma.org/). Allergic rhinitis implies a blocked or runny nose, sneezing, and itching secondary to immunoglobulin (Ig)-E-mediated inflammation of the nasal mucosa [5]. Rhinitis often occurs in combination with conjunctivitis, an inflammatory disease of the eye characterized by flushing, swelling, itching, and watering of the