UNIVERSITÄT SALZBURG

Michael Wallner

Editor
Journal of Allergy and Therapy

Biography

Dr. **Michael Wallner** is an Assistant professor at the University of Salzburg. After graduating he received his PhD from the University of Salzburg in 2004 with full marks. He has received the "Clemens von Pirquet" Award from the Austrian Society of Allergology and Immunology and the Austrian Life Science Award. He is reviewer of the International Archives of Allergy and Clinical Immunology, Clinical and Experimental Allergy, Mediators of Inflammation and Allergy.

Research interest

- Inhalant and food allergens
- Development of novel therapeutics applicable for specific immunotherapy
- Intrinsic properties that turn innocuous proteins into allergenic molecules

Recent publications:

- Deressa T, Stoecklinger A, Wallner M, Himly M, Kofler S, et al. (2014) Structural integrity of the antigen is a determinant for the induction of T-helper type-1 immunity in mice by gene gun vaccines against E. coli beta-galactosidase. PLoS One 9: e102280.
- Ferreira F, Wolf M, Wallner M (2014) Molecular approach to allergy diagnosis and therapy. Yonsei Med J 55: 839-852. doi: 10.3349/ymj.2014.55.4.839.
- Hofbauer SW, Krenn PW, Ganghammer S, Asslaber D, Pichler U, et al. (2014) Tiam1/Rac1 signals contribute to the proliferation and chemoresistance, but not motility, of chronic lymphocytic leukemia cells. Blood 123: 2181-2188.
- Wallner M, Pichler U, Ferreira F (2013) Recombinant allergens for pollen immunotherapy. Immunotherapy 5: 1323-1338. doi: 10.2217/imt.13.114.
- Pichler U, Asam C, Weiss R, Isakovic A, Hauser M, et al. (2013) The fold variant BM4 is beneficial in a therapeutic Bet v 1 mouse model. Biomed Res Int 2013: 832404.

Allergen Immunotherapy

- Discovered by Leonard Noon and John Freeman in 1911
- Allergen immunotherapy / Allergy shots: medical treatment aiming at patients suffering from allergies that are insufficiently controlled by symptomatic treatments
- Rehabilitates the immune system
- Involves administering increasing doses of allergens to accustom the body to substances that are generally harmless (grass, pollen, house dust mites) and thereby induce specific long-term tolerance
- Can be administered under the tongue (with drops or tablets) or by injections under the skin (subcutaneous)
- Only medicine known to tackle not only the symptoms but also the causes of respiratory allergies
- Allergy shots helps the body get used to allergens (trigger an allergic reaction)
- They don't cure allergies, but eventually symptoms get better and the occurrence of allergies may also reduce

Mechanism of Allergy Shots

- Works like a vaccine
- The body responds to injected amounts of a particular allergen, given in gradually increasing doses, by developing immunity or tolerance to the allergen
- Two phases:

Build-up phase

✓ Involves receiving injections with increasing amounts of the allergens about one to two times per week

✓ Length of this phase depends upon how often the injections are received, but generally ranges from three to six months

Maintenance phase

- ✓ Begins once the effective dose is reached
- ✓ Effective dose depends on the level of allergen sensitivity and the patient's response to the build-up phase
- ✓ Longer periods of time between treatments, ranging from two to four weeks
- ✓ A noticeable decrease in symptoms during the build-up phase
- ✓ Maintenance phase may take as long as 12 months to exhibit an improvement
- ✓ If shots are successful, maintenance treatment is generally continued for three to five years
- ✓ Decision to discontinue treatment to be discussed with concerned allergist / immunologist

Types:

1. Sublingual Immunotherapy
2. Subcutaneous Immunotherapy

Sublingual Immunotherapy (SLIT)

- Alternative way to treat allergies without injections
- Allows the body to become tolerant of the allergen by absorbing the allergen through the stomach lining
- Efficient and safe
- Treatment is usually taken at home
- Done in the form of drops or tablets

Advantages:

- Can be self-administered at home
- Eventually can be given to highly allergic infants and young children not old enough for allergy shots
- SLIT therapy has been used for patients with moderate or severe asthma who are not considered good candidates for allergy shots
- May help control against flare-ups when accidental ingestion allergen (food allergy)
- Allergy patients frequently have several colds, sinus infections, ear infections (especially young children) and bronchitis throughout the year
- Not well enough to receive allergy shots on a regular basis
- SLIT can be administered to such patients e.g. chronic sinusitis, chronic otitis media and chronic asthmatic bronchitis
- Once stabilized, they can continue with allergy drops or switch over to allergy injections
- Perfect alternative for patients fearing needles
- Advantageous for patients travelling frequently

Subcutaneous Immunotherapy (SCIT)

- Ancient route of administration
- Consists of allergen extract injections
- Can only be performed with a medical observation
- Protocols generally involve weekly injections during a build-up phase, followed by monthly maintenance injections for a period of 3–5 years
- Although efficient to a great extent, entails the risk of systemic anaphylactic reactions
- Necessity for it to be performed by clinicians trained in allergy

Advantages:

- Proven efficacy in allergic rhinitis and asthma
- Identified effective doses
- Effective in multi-allergen mixes
- Plausible mechanism
- Demonstrated prevention of:

✓ New sensitization

✓ Progression from rhinitis to asthma

- Established duration
- Persistence of efficacy after stopping

Allergy and Therapy Related Journals

- Cell biology: Research & Therapy
- Immunological Techniques in Infectious Diseases
- Immunome Research

Allergy & Therapy
Related Conferences

- 4th International Conference and Exhibition on Immunology"

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