Title: Exploring the immunological basis of peanut and tree nut oral immunotherapy: understanding clinically relevant markers and treatment targets (clinical study Markers4Care)

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Among plant-based foods, peanuts and tree nuts belong to the main elicitors of pediatric food allergies. They are the leading causes of severe, near-fatal allergic reactions in children that often require emergency medical care [1, 2]. Due to their rising prevalence, lifelong risk, and potential to cause cross-reactivity with each other, peanut and tree nut allergies represent a significant clinical challenge in food allergy management. Oral immunotherapy (OIT) has emerged as a promising treatment option for food allergies that are unlikely to resolve on their own. This approach aims to improve patient safety and quality of life by gradually desensitizing individuals through the controlled administration of increasing amounts of the allergenic food. The effectiveness of OIT is typically assessed using oral food challenges, both at the beginning of treatment and at follow-up intervals.

This project aims to measure immune parameters - including antibodies, immune cells, and soluble immune mediators [2-5] - in patients' blood throughout the course of standard-of-care oral OIT. The goal is to identify novel immune markers that correlate with clinical outcomes of the treatment. Characterizing immune changes during OIT will enable patient phenotyping and may facilitate the discovery of objective biomarkers to assess both the short- and long-term efficacy of the therapy.

Own references

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SPEAKER BIOSKETCH: Dr Françoise Morel (CHL)

(Maximum one page – please include your ORCID ID)

NAME, SURNAME: Françoise, MOREL

TITLE: MD (Medical Doctor)

EDUCATION: Medical Practioner specialized in Allergology

CURRENT POSITION AND OTHER RELEVANT PROFESSIONAL ACTIVITIES AND ACCOMPLISHMENTS:

Dr. Morel was trained in Prof. Moneret-Vautrin's team at Nancy University Hospital, France. She specialised in food allergies and worked there from 2002 to 2011 as a clinician and clinical research assistant.

In 2007, she set up the paediatric allergology unit and developed the management of food allergies and anaphylaxis in childhood. She is deeply involved in the treatment and prevention of food allergies.

She's collaborating for many years with the LIH team – Prof. Ollert, Dr. Kuehn and Dr. Hilger on the food allergy thematic, especially on legumes and nut allergies and oral immunotherapy.

SPEAKER BIOSKETCH: Dr Annette Kuehn (LIH)

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EDUCATION: Healthcare professional education as a pharmacist, PhD in Applied Microbiology at Saarland University, Germany. Full supervision rights (ADR) by University of Luxembourg.

CURRENT POSITION AND OTHER RELEVANT PROFESSIONAL ACTIVITIES AND ACCOMPLISHMENTS:
Dr. Kuehn is the Co-Group Leader and Principal Investigator of the group of Molecular & Translational Allergology within the Department of Infection & Immunity at Luxembourg Institute of Health.
Dr. Kuehn has a research focuses on allergy. She aims to discover new translational solutions for the care of allergic patients. Her expertise in the molecular and immunological characterization of allergenic proteins helped her not only to better understand "what makes an allergen an allergen?" but also, to address the demand for advanced precision diagnosis of allergic patients. She contributed substantially to the integration of molecule-based diagnosis into clinical praxis. Her current research aims at combining multiple patient endotyping approaches, ranging from deep IgE-footprints and immune cell phenotypes to functional gut microbiome traits, in order to discover biomarkers and targets for therapy and prevention.

As her role as a PI, Dr. Kuehn has completed numerous multi-annual projects research projects. She has obtained funding from the Fonds National de la Recherche (FNR) for research projects on food safety and food allergy as well as funding for five PhD student projects. She has also obtained funds from the EU and others (Société Française d'Allergologie, France; Personalized Medicine Consortium, Luxembourg; commercial partners). Upon invitation, she joined the European Academy of Allergy and Clinical Immunology (EAACI) taskforce on Molecular Allergology to compile two highly cited reference works. She was an elected EAACI board member during 2022-24, in the EAACI Interest Group of Allergy Diagnosis and Systems Medicine (IGADSM). She is active in several other EAACI taskforces. She succeeded to initiate and conduct the first food allergy trial in Luxembourg (Clinicaltrial.gov ID NCT04604912), together with Dr Françoise Morel from the National Unit of Immunology-Allergology, CHL. Dr Kuehn conducted a first-of-its-kind study on the national allergy burden, in collaboration with the Department of Precision Health, LIH. She has editing roles in peer-reviewed journals. She is author or co-author of numerous peer-reviewed publications in top-ranking journals in allergy and immunology.