



## Kari Nadeau, MD, PhD

Naddisy Foundation Professor of Pediatric Food Allergy, Immunology and Asthma, Professor of Pediatrics (Allergy & Clinical Immunology) and, by courtesy, of Otolaryngology-Head & Neck Surgery at the Lucile Salter Packard Children's Hospital  
Medicine

 Curriculum Vitae available Online

### CLINICAL OFFICES

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### ACADEMIC CONTACT INFORMATION

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### Bio

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#### BIO

Dr. Kari Nadeau is one of the nation's foremost experts in adult and pediatric allergy and asthma. She is the Director of the Sean N. Parker Center for Allergy and Asthma Research at Stanford University, Section Chief of Allergy and Asthma at the Stanford School of Medicine, and an endowed professor under the Naddisy Family Foundation.

Dr. Nadeau received her MD and PhD from Harvard Medical School, completed a residency in pediatrics at Boston Children's Hospital and a clinical fellowship in asthma and immunology at Stanford. After completing her residency, she spent 5 years in the biopharmaceutical industry, where she was instrumental in obtaining FDA approval for two biologics in the fields of autoimmunity and oncology, before starting her fellowship at Stanford.

Dr. Nadeau has received honors and awards from the American Academy of Allergy, Asthma & Immunology; the American Lung Association; the Clinical Immunological Society; Food Allergy Research & Education (FARE); and the NIH. She has also been recognized with the U.S. Environmental Protection Agency's STAR Grant Award. Dr. Nadeau has served as a reviewer for NIH Study Sections, and a member of the American Lung Association Medical Board, CA. She serves on the Environmental Health Policy committee for the American Thoracic Society and is a Fellow in the American Academy of Allergy, Asthma and Immunology as well as a member of ASCI (American Society of Clinical Investigation).

She has authored or co-authored more than 100 original papers. Her research focuses on understanding the factors responsible for the increased prevalence of allergies and asthma in the population, improving diagnostics, and understanding the immunological mechanisms underlying these diseases. She was the first to successfully desensitize individuals to more than one allergy at a time using multi-allergen oral immunotherapy. She continues to push forward with innovative clinical research using novel antibodies, peptide vaccines, and nanoparticles in order to provide safe and effective therapeutic options for those with allergies and asthma.

#### CLINICAL FOCUS

- Allergy and Immunology
- Adult and Pediatric Asthma, Allergy, and Immunology

## ACADEMIC APPOINTMENTS

- Professor - Med Center Line, Medicine
- Professor - Med Center Line, Pediatrics - Allergy and Clinical Immunology
- Professor - Med Center Line (By courtesy), Otolaryngology - Head & Neck Surgery Divisions
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Maternal & Child Health Research Institute (MCHRI)

## ADMINISTRATIVE APPOINTMENTS

- Volunteer Clinical Instructor, General Pediatrics, (2003-2005)
- Instructor, Allergy and Immunology, (2006-2007)
- Instructor, ENT, (2007-2008)
- Assistant Professor, Affiliate appointment in Otolaryngology, (2007-2011)
- Assistant Professor, Pediatrics, (2007-2011)

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## HONORS AND AWARDS

- Pediatric Research Award, CHRP (July 2007-July 2008)
- Parker B Francis Award, Francis Foundation (July 2006-July 2009)
- Mary Hewitt Loveless Award, Loveless Foundation (July 2006-July 2009)
- Stanford Free Clinics Teaching Award, Stanford Medical School (June 2007)
- National Junior Faculty Award, American Academy of Asthma, Allergy and Immunology (2007)

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## BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Faculty Fellow, Stanford Center for Innovation in Global Health (2015-Present) (2015 - present)

## PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

## PROFESSIONAL EDUCATION

- Fellowship: Stanford University Medical Center (2006) CA
- Residency: Children's Hospital Boston (1997) MA
- Residency: Stanford University Medical Center (2004) CA
- Internship: Children's Hospital Boston (1996) MA
- Medical Education: Harvard Medical School (1995) MA

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## COMMUNITY AND INTERNATIONAL WORK

- Volunteer Clinical Faculty, Menlo Park VA

## LINKS

- Sean N. Parker Center for Allergy & Asthma Research at Stanford University: <http://med.stanford.edu/allergyandasthma/research.html>
- Pediatrics — Allergy & Immunology: <http://med.stanford.edu/pedair.html>

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

The focus of our clinical research is to find safe and effective treatments for allergy and asthma. In 2014, we demonstrated that oral immunotherapy can simultaneously and successfully achieve desensitization for multiple food allergens (up to 5) and that adjunctive omalizumab therapy, by blocking free IgE, facilitates and decreases time to desensitization (Begin et al, 2014). Additional immunotherapy trials with adjunctive omalizumab (peanuts and milk) have supported these findings (Wood et al, 2016; MacGinnitie et al, 2017). The data from these clinical trials have provided initial evidence for the safety and feasibility of oral immunotherapy for food allergy and have paved the way for further innovative research in the field. Currently, we have in progress a number of novel immunotherapy trials for food allergy and asthma. Some of these include the use of skin patches for delivering allergens, the use of novel immunoglobulins (anti-IL-33, anti-IL-23), and DNA vaccines. On analyzing data obtained from these clinical studies, we hope to better understand the mechanisms that underlie allergy and asthma.

The focus of our basic research is to understand the characteristics of the allergens that mediate clinical reactions, the role of the environment and genetics in increasing risk of allergies and asthma, and the molecular, cellular, and genetic differences between those with allergies and asthma and those who are immune tolerant or those who achieve desensitization through immunotherapy. Our multifood allergen immunotherapy studies have enabled determination of associations and cross-reactivities between different food allergens and have further assisted us with epitope mapping, identification, and characterization of allergenic components of foods that induce clinical reactivity (Zhang et al, 2016; Zhang et al, 2016; Andorf et al, 2017). Data from these studies may, in the future, enable therapeutic targets for food allergies.

We are particularly interested in the role of T cells in immune tolerance. Using state-of-the-art techniques, such as allergen-specific T-cell sorting and single-cell gene expression, we have successfully demonstrated that it is possible to monitor patients undergoing immunotherapy by high dimensional immunophenotyping of T cells and predict the success of future treatments (Ryan et al, 2016). These findings can be used to impact patient management in real time. Our group has also shown that environmental factors such as exposure to small particulate matter from diesel and industrial fumes impair regulatory T cell function in asthma (Nadeau et al, 2010) and that air purifiers that reduce indoor fine particulate matter (<2.5 micrometer diameter) significantly improves nasal symptoms in children with allergic rhinitis (Park et al, 2016). Data from our immunotherapy trials indicate that epigenetic modifications may play an important role in regulating allergic disease and asthma (Syed et al, 2014) and may serve as useful biomarkers for diagnosis and prognosis.

As we move forward, the focus of the Center is to translate our understanding of the basic science underlying allergic disease and asthma to enable novel and innovative clinical studies and induce tolerance through immunotherapy.

### CLINICAL TRIALS

- Efficacy and Safety of Several Doses of Viaskin Peanut in Adults and Children With Peanut Allergy, Recruiting
- Peanut Reactivity Reduced by Oral Tolerance in an Anti-IgE Clinical Trial, Recruiting
- Safety Study of Viaskin Peanut to Treat Peanut Allergy, Recruiting
- Understanding and Diagnosing Allergic Disease in Twins, Recruiting
- Clinical Study Using Biologics to Improve Multi OIT Outcomes, Not Recruiting
- Efficacy and Safety of Viaskin Milk in Children With IgE-Mediated Cow's Milk Allergy, Not Recruiting

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## Teaching

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### COURSES

2017-18

- Translational Research: Turning Science into Medicine: MED 50N (Win)

#### 2016-17

- Translating Science to Disease Treatment: MED 50N (Win)

#### 2015-16

- Translating Science to Disease Treatment: MED 50N (Win)

### STANFORD ADVISEES

#### Postdoctoral Faculty Sponsor

Shifaa Alkotob, Xiaorui Han, Abhinav Kaushik, Hesamaldin Movassagh

### GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Immunology (Phd Program)

## Publications

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### PUBLICATIONS

- **Legends of Allergy: Stephen J. Galli.** *Allergy*  
Tsai, M., Chinthrajah, S., Nadeau, K. C.  
2019
- **Newly identified T cell subsets in mechanistic studies of food immunotherapy.** *The Journal of clinical investigation*  
Sampath, V., Nadeau, K. C.  
2019; 129 (4): 1431–40
- **A perspective on the pediatric death from oral food challenge reported from the Allergy Vigilance Network.** *Allergy*  
Upton, J., Alvaro, M., Nadeau, K.  
2019
- **Mind the gaps: clinical trial concepts to address unanswered questions in aeroallergen immunotherapy. An NIAID/AHRQ Workshop.** *The Journal of allergy and clinical immunology*  
Wheatley, L. M., Wood, R., Nadeau, K., Liu, A., Zoratti, E., Bacharier, L., Brittain, E., Calderon, M., Casale, T., Chipps, B., Cox, L., Creticos, P. S., Desai, et al  
2019
- **Esophageal Eosinophilia is Present in Some Peanut Allergic Patients**  
Fernandez-Becker, N., Wright, B. L., Kambham, N., Shim, K. P., Purington, N., Long, A. J., Tsai, M., Boyd, S., Galli, S. J., Nadeau, K. C., Chinthrajah, R.  
MOSBY-ELSEVIER.2019: AB310

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