

# MOUNT SINAI EXPERT GUIDES

## Allergy and Clinical Immunology

- Potential pitfalls / common mistakes
- Clinical pearls
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- Evidence-based guidelines

**EDITED BY**

Hugh A Sampson

**WILEY** Blackwell



Icahn  
School of  
Medicine at  
**Mount  
Sinai**



MOUNT SINAI  
EXPERT GUIDES

# Allergy and Clinical Immunology



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**EDITED BY**

**Hugh A. Sampson, MD**

Kurt Hirschhorn Professor of Pediatrics

Dean for Translational Biomedical Sciences

Director, Elliot and Roslyn Jaffe Food Allergy Institute

Division of Allergy/Immunology; Department of Pediatrics

Icahn School of Medicine at Mount Sinai

New York, NY, USA

**WILEY** Blackwell



**Icahn  
School of  
Medicine at  
Mount  
Sinai**

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The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

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# Contributors

**Shradha Agarwal MD**

Assistant Professor of Medicine  
Division of Allergy/Immunology  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Supinda Bunyavanich MD, MPH**

Assistant Professor  
Elliot and Roslyn Jaffe Food Allergy Institute  
Division of Allergy/Immunology  
Department of Pediatrics  
Department of Genetics and Genomic Sciences  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Paula J. Busse MD**

Associate Professor  
Department of Medicine  
Division of Clinical Immunology  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Jean-Christoph Caubet MD**

Chef de clinique  
Division of Allergy  
Department of Pediatrics  
University Hospitals of Geneva  
Geneva, Switzerland

**Mirna Chehade MD, MPH**

Associate Professor of Pediatrics and Medicine  
Elliot and Roslyn Jaffe Food Allergy Institute  
Division of Allergy/Immunology  
Department of Pediatrics  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Beth E. Corn MD**

Assistant Professor of Medicine  
Department of Clinical Immunology  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Amanda L. Cox MD**

Assistant Professor of Pediatrics  
Elliot and Roslyn Jaffe Food Allergy Institute

Division of Allergy/Immunology  
Department of Pediatrics  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Charlotte Cunningham-Rundles MD, PhD**

Professor of Medicine  
Departments of Medicine and Pediatrics  
The David S. Gottesman Professor  
The Immunology Institute  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Elizabeth J. Feuille MD**

Clinical Fellow  
Division of Allergy/Immunology  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Satish Govindaraj MD**

Associate Professor  
Department of Otolaryngology–Head  
and Neck Surgery  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Emma Guttman-Yassky MD, PhD**

Associate Professor of Dermatology  
and Immunology  
Departments of Dermatology and Immunology  
Director, Center for Excellence in Eczema  
Director, Occupational and Contact  
Dermatitis Clinic  
Director, Laboratory for Investigation of  
Inflammatory Skin Diseases  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Yan W. Ho MD**

Resident of Otolaryngology Program  
Department of Otolaryngology–Head  
and Neck Surgery  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Jacob D. Kattan MD**

Assistant Professor of Allergy and Immunology  
Elliot and Roslyn Jaffe Food Allergy Institute  
Division of Allergy/Immunology  
Department of Pediatrics  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Saakshi Khattri MD**

Research Associate  
Laboratory of Investigative Dermatology  
Rockefeller University  
New York, NY, USA

**Jennifer S. Kim MD**

Attending Physician  
NorthShore University HealthSystem  
Evanston, IL, USA;  
Elliot and Roslyn Jaffe Food Allergy Institute  
Division of Allergy/Immunology  
Department of Pediatrics  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Michael Mullen MD**

Professor of Medicine  
Director, Institute of Advanced Medicine  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Anna Nowak-Węgrzyn MD**

Associate Professor of Pediatrics  
Elliot and Roslyn Jaffe Food Allergy Institute  
Division of Allergy/Immunology  
Department of Pediatrics  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Roberto Posada MD**

Associate Professor of Pediatrics (Infectious  
Diseases) and Medical Education  
Director Pediatric, Adolescent and Young  
Adult HIV Program  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Elena S. Resnick MD**

Assistant Professor of Allergy and Clinical  
Immunology  
Icahn School of Medicine at Mount Sinai  
New York, NY

**Mariya Rozenblit**

Medical Student  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Hugh A. Sampson MD**

Kurt Hirschhorn Professor of Pediatrics  
Dean for Translational Biomedical  
Sciences  
Director, Elliot and Roslyn Jaffe Food  
Allergy Institute  
Division of Allergy/Immunology  
Department of Pediatrics  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Gail F. Shust MD**

Assistant Professor  
Department of Pediatrics and Medical  
Education  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Scott H. Sicherer MD**

Elliot and Roslyn Jaffe Professor of Pediatrics,  
Allergy/Immunology  
Jaffe Food Allergy Institute  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Gwen S. Skloot MD**

Associate Professor of Medicine  
Division of Pulmonary,  
Critical Care and Sleep Medicine  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Timothy Sullivan MD**

Instructor  
Division of Infectious Diseases  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Julie Wang MD**

Associate Professor of Pediatrics  
Elliot and Roslyn Jaffe Food  
Allergy Institute  
Division of Allergy/Immunology  
Department of Pediatrics  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

**Kate Welch MD**

Clinical Fellow  
Division of Allergy/Immunology  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA

## Series Foreword

Now more than ever, immediacy in obtaining accurate and practical information is the coin of the realm in providing high quality patient care. The Mount Sinai Expert Guides series addresses this vital need by providing accurate, up-to-date guidance, written by experts in formats that are accessible in the patient care setting: websites, smartphone apps and portable books. The Icahn School of Medicine, which was chartered in 1963, embodies a deep tradition of pre-eminence in clinical care and scholarship that was first shaped by the founding of the Mount Sinai Hospital in 1855. Today, the Mount Sinai Health System, comprised of seven hospitals anchored by the Icahn School of Medicine, is one of the largest health care systems in the United States, and is revolutionizing medicine through its embracing of transformative technologies for clinical diagnosis and treatment. The Mount Sinai Expert Guides series builds upon both this historical renown and contemporary excellence. Leading experts across a range of disciplines provide practical yet sage advice in a digestible format that is ideal for trainees, mid-level providers and practicing physicians. Few medical centers in the USA could offer this type of breadth while relying exclusively on its own physicians, yet here no compromises were required in offering a truly unique series that is sure to become embedded within the key resources of busy providers. In producing this series, the editors and authors are fortunate to have an equally dynamic and forward-viewing partner in Wiley Blackwell, which together ensures that health care professionals will benefit from a unique, first-class effort that will advance the care of their patients.

*Scott Friedman MD*

*Series Editor*

*Dean for Therapeutic Discovery*

*Fishberg Professor and Chief, Division of Liver Diseases*

*Icahn School of Medicine at Mount Sinai*

*New York, NY, USA*

# Preface

In the past 60 years, allergic disorders have increased dramatically in “westernized” countries, especially in North America, Europe and Australia/New Zealand. In the last half of the twentieth century, increases in respiratory allergies, i.e. asthma and allergic rhinitis, largely accounted for the rise in prevalence. However, in the last 15 years the prevalence of food allergies/anaphylaxis and atopic dermatitis have increased over two- to three-fold while the prevalence of respiratory allergies have leveled-off. Allergic disorders now affect about one-third of the US population and cost the health care system several billions of dollars each year in medical expenses and lost wages. Drug allergy is estimated to affect about 10% of the world’s population and 20% of hospitalized patients. Over the past two decades, scientists and clinicians have made great strides in the diagnosis and management of allergic disorders. The past several decades have also witnessed tremendous advances in our recognition of immunodeficiency disorders and our understanding of the human immune system. Advances in molecular genetic techniques and other technical advances have led to the identification and characterization of many new immunodeficiency disorders that have enabled clinicians to more appropriately treat patients afflicted with these disorders. Early recognition and initiation of therapy is key to preserving a more normal life for children afflicted with these disorders. In addition, investigators have now recognized that adults also develop various forms of primary and secondary immunodeficiency diseases and require timely evaluation and management of their disorder.

In this book, members of the pediatric and adult Divisions of Allergy and Immunology at the Icahn School of Medicine at Mount Sinai have teamed-up to provide a clinician-friendly manual outlining the diagnosis and management of a wide variety of allergic and immunodeficient disorders. Members of the Allergy/Immunology group have provided a brief outlines on the etiology and pathogenesis of various disorders, succinct guidelines on the relevant historical and laboratory information necessary for establishing a timely and accurate diagnosis, guidelines on the most current forms of therapy to manage the various disorders, and a brief discussion of anticipated natural history and outcomes. Each chapter author provides her/his perspective on evaluating and managing various allergic and immunologic disorders based on years of experience dealing with allergic and immunodeficient patients. This book is not meant to be an exhaustive discussion of allergic/immunologic conditions (although references are provided to satisfy the most inquisitive reader), but a useful guidebook enabling the busy clinician to recognize patients afflicted with allergic or immunologic disorders and provide them with the most current management strategies.

*Hugh A. Sampson, MD  
Kurt Hirschhorn Professor of Pediatrics  
Dean for Translational Biomedical Sciences  
Director, Elliot and Roslyn Jaffe Food Allergy Institute  
Division of Allergy/Immunology; Department of Pediatrics  
Icahn School of Medicine at Mount Sinai  
New York, NY, USA*

# List of Abbreviations

|         |                                                                                 |
|---------|---------------------------------------------------------------------------------|
| ABG     | arterial blood gas                                                              |
| ACD     | allergic contact dermatitis                                                     |
| ACE-I   | angiotensin-converting enzyme inhibitor                                         |
| AD      | atopic dermatitis                                                               |
| ADA     | adenosine deaminase                                                             |
| AD-HIES | autosomal dominant hyper IgE syndrome                                           |
| AGEP    | acute generalized exanthematous pustulosis                                      |
| AHR     | airway hyper-responsiveness                                                     |
| AKC     | atopic keratoconjunctivitis                                                     |
| ALPS    | autoimmune lymphoproliferative syndrome                                         |
| APECED  | autoimmune polyendocrinopathy, candidiasis, and ectodermal dystrophy (syndrome) |
| APT     | atopy patch test                                                                |
| ASM     | aggressive systemic mastocytosis                                                |
| BMP     | basic metabolic panel                                                           |
| BP      | blood pressure                                                                  |
| cART    | combination antiretroviral therapy                                              |
| CBC     | complete blood count                                                            |
| CD      | celiac disease                                                                  |
| CDC     | Centers for Disease Control and Prevention                                      |
| CGD     | chronic granulomatous disease                                                   |
| CLL     | chronic lymphocytic leukemia                                                    |
| CM      | cow's milk                                                                      |
| CM      | cutaneous mastocytosis                                                          |
| CMC     | chronic mucocutaneous candidiasis                                               |
| CMV     | cytomegalovirus                                                                 |
| COPD    | chronic obstructive pulmonary disease                                           |
| CRP     | C-reactive protein                                                              |
| CSF     | cerebrospinal fluid                                                             |
| CT      | computed tomography                                                             |
| CU      | chronic urticaria                                                               |
| CVID    | common variable immunodeficiency                                                |
| DAF     | decay accelerating factor                                                       |
| DBPCFC  | double-blind, placebo-controlled oral food challenge                            |
| DCM     | diffuse cutaneous mastocytosis                                                  |
| DGP     | deamidated gliadin peptide                                                      |
| DLCO    | diffusion capacity for carbon monoxide                                          |
| DRESS   | drug reaction or rash with eosinophilia and systemic symptom                    |
| EASI    | Eczema Area and Severity Index                                                  |
| EG      | eosinophilic gastroenteritis                                                    |
| EGD     | esophagogastroduodenoscopy                                                      |