

J. Ring H. Behrendt (Eds.)

New Trends in Allergy V

Springer

Berlin

Heidelberg

New York

Hong Kong

London

Milan

Paris

Tokyo

J. Ring H. Behrendt (Eds.)

New Trends in Allergy V

With 60 Figures and 56 Tables



Springer

Johannes Ring, Prof. Dr. Dr.
Klinik und Poliklinik für Dermatologie
und Allergologie am Biederstein
Klinikum Rechts der Isar
Technische Universität München
Biedersteiner Straße 29
80802 München, Germany

Heidrun Behrendt, Prof. Dr.
ZAUM – Zentrum für Allergie und Umwelt
Klin. Kooperationsgruppe Umweltdermatologie
und Allergologie GSF
Technische Universität München
Biedersteiner Straße 29
80802 München, Germany

ISBN 3-540-43082-2 Springer-Verlag Berlin Heidelberg New York

Library of Congress Cataloging-in-Publication Data.

New trends in allergy V / [Johannes Ring, Heidrun Behrendt (eds.)]. p. ; cm.

Includes bibliographical references and index.

ISBN 3540430822 (alk. paper)

1. Allergy–Congresses. I. Title: New trends in allergy 5. II. Title: New trends in allergy five.
III: Ring, Johannes, 1945– IV. Behrendt, H. (Heidrun), 1945–
[DNLM: 1. Hypersensitivity–Congresses. 2. Dermatitis, Atopic–Congresses. 3. Environmental
Illness–Congresses. 4. Environmental Pollutants–immunology–Congresses. 5. Hypersens-
itivity–genetics–Congresses. 6. Hypersensitivity–therapy–Congresses. WD 300 N5324 2003]
RC584.N484 2003 616.97--dc21

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer-Verlag. Violations are liable for prosecution under the German Copyright Law.

Springer-Verlag Berlin Heidelberg New York
a member of BertelsmannSpringer Science+Business Media GmbH
<http://www.springer.de/medizin>
© Springer-Verlag Berlin Heidelberg 2002
Printed in Germany

The use of general descriptive names, registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Product liability: The publishers cannot guarantee the accuracy of any information about dosage and application contained in this book. In every individual case the user must check such information by consulting the relevant literature.

Cover design: *design & production* GmbH, Heidelberg
Typesetting: Goldener Schnitt, Sinzheim
SPIN: 10857920 24/3130 5 4 3 2 1 0 – Printed on acid-free paper

Contents

Epidemiology, Genetic and Environmental Factors

- 1 Pollen Grains Contain and Release Not Only Allergens,
but Also Eicosanoid-Like Substances with
Neutrophil Chemotactic Activity:
A New Step in the Initiation of Allergic Sensitization?
H. BEHRENDT, A. KASCHE, C. TRIDL, S. PLÖTZ, J. HUSS-MARP,
U. RISSE, C. EBNER VON ESCHENBACH, J. RING 3
- 2 House Dust Mites in Stuffed Toys as a Cause
of Allergy in Lithuania
R. DUBAKIENE, A. DAUTARTIENE 9
- 3 Pharmacogenetics of β_2 -Adrenoceptor
and Asthmatic Phenotypes
M.L. KOWALSKI, G. WOSZCZEK 13
- 4 Pertussis Vaccination Is Not Associated with a
Higher Prevalence of Allergies in Six-Year-Old Children
from West Germany
U. KRÄMER, H. BEHRENDT, U. RANFT, T. SCHÄFER, J. RING . 21
- 5 Human Allergeneticists Should Listen
to Their Dog's Barking
A.L. DE WECK, M. GRIOT-WENK, H. SCHNEIDER,
B. SCHIESSL, B. ZEEMANN, P. MAYER, E. LIEHL 27

Pathophysiology

- 6 Neuro-Immune Interaction in Allergy and Asthma
A. BRAUN, H. RENZ 39
- 7 Cadherin Biology of Langerhans Cells
T. JAKOB 46
- 8 CD8 T Cell–Dendritic Cell (DC)
Interaction in the Regulation of IgE
D.M. KEMENY, M.J. THOMAS 56

9	MHC Class II-Restricted T Cell Activation by Mouse and Human Mast Cells: Potential Clinical Implications S. MÉCHERI	62
10	T Cell Reactivity Against Timothy Grass Pollen Allergens in Allergic Versus Non-Allergic Human Donors: Epitope Recognition and Cytokine Profile R.L. OROPEZA-WEKERLE, E. ALBERT, U. DARSOW, J. RING, H. BEHRENDT	67
11	α 1,3-Fucosyltransferase VII mRNA Expression Is Induced by Superantigens and Blocked by Inhibitors of NF- κ B M. PODDA, H.A. BESCHMANN, A.M. DUIJVESTIJN, U.H. v. ANDRIAN, R. KAUFMANN, T.M. ZOLLNER	70
12	Dendritic Cells and Tolerance J. SALOGA, I. BELLINGHAUSEN, U. BRAND, K. STEINBRINK, A.H. ENK, J. KNOP	76
13	Eosinophils Maintain Their Capacity to Degranulate upon Repetitive Stimulation with the Same Agonist H.-U. SIMON, F. LEVI-SCHAFER	85
14	Mast Cells as Initiators and Effectors of Allergic Inflammation A. SOLOMON, A.M. PILIPONSKY, J. PE'ER, F. LEVI-SCHAFER	92

Atopic Eczema and Allergic Skin Diseases

15	Modulation of Skin Barrier Function W. WOHLRAB, C. HUSCHKA, D. FRÖDE, J.-M. SCHNEIDER ..	105
16	T Cells and Effector Mechanisms in Atopic Dermatitis M. AKDIS, A. TRAUTMANN, S. KLUNKER, K. BLASER, C.A. AKDIS	113
17	Material-Odor Analysis as a Prerequisite for the Allergological Evaluation of Outgassing Odoractive Volatile Compounds K. BREUER, F. MAYER, E. MAYER	121
18	The Atopy Patch Test: Use and Perspectives U. DARSOW, J. RING	128

19	The Intrinsic Type of Atopic Dermatitis Is Characterised by a Low Expression of the High-Affinity IgE Receptor FcεRI on Epidermal Dendritic Cells A. WOLLENBERG, T. OPPEL, K. REISER, M. MODERER, J. HABERSTOK, S. GÜNTHER, T. BIEBER, E. SCHULLER	137
20	Staphylococcal Exotoxins as Trigger Factors of Atopic Dermatitis K. BREUER, T. WERFEL, A. KAPP	145

Food Allergy and Anaphylaxis

21	Peanut Allergy: Are Clinical Symptoms Associated with IgE-Reactivity to Certain (Recombinant) Peanut Allergens? W.M. BECKER, T. KLEBER-JANKE, U. LEPP	159
22	Challenge Tests with Food Additives and Aspirin in the Diagnostics of Chronic Urticaria. A Case of Immediate Cutaneous Hypersensitivity to Sodium Bisulphite (E-222) Confirmed by Patch Testing M. KUREK, E. GRUBSKA-SUCHANEK	166
23	Serum Sickness as a Clinical Model for Food Intolerance V.A. MARINKOVICH	175
24	Role of Tryptase in Anaphylaxis B. PRZYBILLA, D. LUDOLPH-HAUSER	181
25	Practical Approach to Adverse Food Reactions I. VIELUF, M. BESLER, A. PASCHKE, H. STEINHART, D. VIELUF	190

Occupational and Environmental Aspects

26	Multiple Chemical Sensitivity and Others: Allergological, Environmental and Psychological Investigations in Individuals with Indoor Air-Related Complaints B. EBERLEIN-KÖNIG, B. PRZYBILLA, P. KÜHNEL, G. GOLLING, I. GEBEFÜGI, J. RING	205
27	Latex Allergens and Latex Allergy K. TURJANMAA, T. PALOSUO	217

- 28 Long-Term Course of Natural Rubber Latex Sensitization and Allergy
E. VOCKS, W. VAN DER LEEDEN, J. RAKOSKI, J. RING 221

Pharmacotherapy

- 29 Long-Term Continuous Antiallergic Treatment Reduces Symptoms and Controls Allergic Inflammation Better than Symptomatic Treatment
G. CIPRANDI, M. TOSCA, V. RICCA, G. PASSALACQUA, G.W. CANONICA 229
- 30 Rapid Onset and Sustained Efficacy of Desloratadine in Treatment of Chronic Idiopathic Urticaria
A. GAUGER, R. HEIN, G. RIKKEN, H. STAUDINGER, J. RING . 233
- 31 Preclinical Efficacy and Antiallergic Profile of Desloratadine, a Potent Histamine H_1 -Receptor Antagonist
W. KREUTNER, J.A. HEY, J.C. ANTHES, A. BARNETT 241
- 32 Desloratadine Is Effective at Relieving Nasal Congestion, as Demonstrated in Three Placebo-Controlled Trials in Patients with Seasonal Allergic Rhinitis
R. LORBER, L.M. SALMUN, M.R. DANZIG 252
- 33 Novel Concepts on Allergic Rhinitis: From Pathogenesis to Treatment
R. PAWANKAR, S. YAMAGISHI, R. TAKIZAWA, C. OZU, T. YAGI 260

Immunotherapy

- 34 CpG Oligodeoxynucleotides and Their Potential Role in the Immunotherapy of Allergic Diseases
A.M. KRIEG 273
- 35 Allergen 3-D Structure-Based Design of Future Vaccines for Specific Allergy Vaccination
H. LØWENSTEIN, H. IPSSEN, M.D. SPANGFORT, J.N. LARSEN . 279
- 36 Immunological Mechanisms of Anti-IgE Treatment
R.J.J. VAN NEERVEN, C.P.A.A. VAN ROOMEN, E.F. KNOL 284
- Subject Index 293

List of Chairpersons (not listed as First Authors)

W. ABERER, Graz

P. ARENBERGER, Praha

J. BIENENSTOCK, Hamilton

K. BLASER, Davos

O. BRAUN-FALCO, München

O. HERBARTH, Leipzig

K. NEKAM, Budapest

U. MÜLLER, Bern

T. PLATTS-MILLS, Charlottesville

E. RICHTER, München

J. RING, München

M. SCHLAAK, Borstel

G. SCHULTZE-WERNINGHAUS, Bochum

K. THESDRUP-PEDERSEN, Aarhus

CH. VIRCHOW, Freiburg

J. WENNING, Villingen-Schwenningen

List of First Authors

AKDIS M., MD

Schweizerisches Institut für Allergie und Asthmaforschung,
Obere Strasse 22, 7270 Davos, Switzerland

BECKER W.-M., Dr. rer. nat.

Forschungsinstitut Borstel, Parkallee 35, 23845 Borstel, Germany

BEHRENDT H., Prof. Dr. med.

ZAUM – Zentrum Allergie und Umwelt, Klin. Kooperationsgruppe
Umweltdermatologie und Allergologie GSF/TU München,
Biedersteinerstraße 29, 80802 München, Germany

BRAUN A., Dr. med.

Klinikum der Phillips-Universität Marburg, Abteilung für
Klinische Chemie und Molekulare Diagnostik, Marburg,
Germany

BREUER K., Dr.

Fraunhofer Institut für Bauphysik, Postfach 1182, 83601 Holzkirchen,
Germany

BREUER K., Dr.

Hautklinik Linden, Medizinische Hochschule Hannover,
Germany

CIPRANDI G., Dr.

Clinica de Malattie dell'Apparato Respiratorio E Allergologia,
Università de Genova, Largo Rosanna Benzi 10, 16132 Genova, Italy

DARSOW U., Priv. Doz. Dr.

Klinik und Poliklinik für Dermatologie und Allergologie am
Biederstein, TU München, Biedersteinerstraße 29, 80802 München,
Germany

DUBAKIENE R., Prof. Dr.

Allergy Centre Vilnius University, Zemynos 17–10, Vilnius 2022,
Lithuania

EBERLEIN-KÖNIG B., Priv. Doz. Dr.

Klinik und Poliklinik für Dermatologie und Allergologie am
Biederstein, TU München, Biedersteinerstraße 29, 80802 München,
Germany

GAUGER, A., Dr.

Klinik und Poliklinik für Dermatologie und Allergologie am
Biederstein, TU München, Biedersteinerstraße 29, 80802 München,
Germany

JAKOB T., Dr.

Klin. Kooperationsgruppe Umweltdermatologie & Allergologie
GSF/TU München, Klinik und Poliklinik für Dermatologie und
Allergologie am Biederstein, TU München, Biedersteinerstraße 29,
80802 München, Germany

KAPP A., Prof. Dr.

Klinik und Poliklinik für Dermatologie und Venerologie der
Medizinischen Hochschule, Ricklinger Straße 5, 30449 Hannover,
Germany

KEMENY M., Prof. Dr.

Department of Immunology, Rayne Institute, 123 Coldharbour Lane,
London SE5 9NU, UK

KRÄMER U., Dr.

Medizinisches Institut für Umwelthygiene an der Heinrich-
Heine-Universität Düsseldorf, Auf'm Hennekamp 4,
40225 Düsseldorf, Germany

KRIEG A.M., Ass. Prof. MD

Department of Internal Medicine, University of Iowa, 54 EMRB,
Iowa City, IA 52242, USA

KREUTNER W., MD

Schering Plough Research Institute, 2000 Galloping Hill Road,
Kenilworth, NJ 07033-1300, USA

KOWALSKI M., Prof. Dr.

Department of Clinical Immunology, University School of
Medicine Lodz, 11 Mazowiecka Street, 93315 Lodz, Poland

KUREK M., Prof. Dr.

Department of Dermatology, Medical University of Gdansk,
Ul. Debinki 7, 80211 Gdansk, Poland

LEVI-SCHAFER F., Prof. Dr.

Department of Pharmacology, Hadassah Medical School,
P.O. Box 12065, Jerusalem, Israel

LORBER R., MD

Schering Plough Research Institute, 2000 Galloping Hill Road,
Kenilworth, NJ 07033-1300, USA

LØWENSTEIN H., Prof. Dr.

13166 ALK A/S, Bøge Allé 10-12, 2970 Horsholm, Denmark

MARINKOVICH V.A., MD

Hitachi Chemical Diagnostics Inc., 630 Clyde Court,
Mountain View, CA 94043, USA

MÉCHERI S., Dr.

Unité d'Immuno-Allergie, Institut Pasteur, 28 rue Dr. Roux,
75724 Paris, Cedex 15, France

VAN NEERVEN J., Dr.

Kruislaan 318, 1321 BW Amsterdam, The Netherlands

OROPEZA-WEKERLE R.-L., Dr.

Klin. Kooperationsgruppe an der Klinik und Poliklinik für
Dermatologie und Allergologie am Biederstein, TU München,
Biedersteinerstraße 29, 80802 München, Germany

PAWANKAR R., Prof. Dr.

Department of Otolaryngology, Nippon Medical School,
113-8603 Tokyo, Japan

PODDA M., Dr.

Zentrum der Dermatologie und Venerologie (ZDV),
Klinikum der Johann Wolfgang Goethe-Universität Frankfurt,
Theodor-Stern-Kai 7, 60590 Frankfurt, Germany

PRZYBILLA B., Prof. Dr.

Dermatologische Klinik und Poliklinik, Klinikum
Innenstadt der Ludwig Maximilians-Universität München,
Frauenlobstraße 9-11, 80337 München, Germany

SALOGA J., Priv. Doz. Dr.

Universitäts-Hautklinik Mainz, Langenbeckstraße 1, 55131 Mainz,
Germany

SIMON H.-U., Prof. Dr.

Pharmakologisches Institut der Universität Bern,
Friedbühlstrasse 49, 3010 Bern, Switzerland

SOLOMON, A., Priv.-Doz. Dr.

Department of Pharmacology, Hadassah Medical School,
P.O. Box 12065, Jerusalem, Israel

TURJANMAA K., Prof. Dr.

Department of Dermatology, Tampere University Hospital,
PO Box 2000, 33521 Tampere, Finland

VIELUF I., Dr.

Zentrum für Dermatologie, Allergologie, Pädiatrie und
Umweltmedizin, Fachklinikum Borkum, Jann-Berghaus-Straße 49,
26757 Borkum, Germany

VOCKS E., Prof. Dr.

Deutsche Klinik für Dermatologie und Allergie,
Alexanderhausklinik, Tobelmühlestrasse 2,
7270 Davos-Platz, Switzerland

DE WECK A.L., Prof. Dr.

Research Laboratory, 14 Grand Places, 1700 Fribourg,
Switzerland

WOLLENBERG A., Priv.-Doz. Dr.

Dermatologische Klinik und Poliklinik,
der Ludwig Maximilians-Universität München,
Frauenlobstraße 9-11, 80337 München, Germany

WOHLRAB W., Prof. Dr.

Universitätsklinik und Poliklinik für Dermatologie
und Venerologie, Medizinische Klinik der Universität
Halle-Wittenberg, Ernst-Kromayer-Straße 5-6,
06112 Halle, Germany

ZOLLNER T.M., Priv.-Doz. Dr.

Zentrum der Dermatologie und Venerologie (ZDV),
Klinikum der Johann Wolfgang Goethe-Universität Frankfurt,
Theodor-Stern-Kai 7, 60590 Frankfurt, Germany

Preface

Allergy is one of the major health problems of most modern societies. Allergic diseases have increased in prevalence during the last decades; the reasons for this increase are unknown, there are only hypothetical concepts for explanation.

The series *New Trends in Allergy* now covers five volumes originating from special international symposia, started in 1980 and held every 5 years, which highlight specific areas of progress in allergy research and practice. The idea behind the 5-year interval between these symposia is that real new developments do not occur very often and certainly not every year.

The contents of this book focus on specific areas where progress in allergy research has shown fascinating developments, such as:

- Elucidation of the complex genetic basis of atopy
- The influence of environmental pollutants as well as natural biological environmental factors on allergy
- Gene-environment interactions in the development of allergy
- Psycho-neuro-immunological aspects of allergic sensitisation and disease
- The nature and function of dendritic cells in skin and mucous membranes
- Interactions between lymphocytes and effector cells, such as mast cells, eosinophils and neutrophils
- Allergen carriers, allergen release and bioavailability, allergen structure
- Atopic eczema
- Asthma and rhinoconjunctivitis
- Food allergy and anaphylaxis
- Pharmacotherapy
- Unspecific (e.g. anti-IgE) and allergen-specific immunotherapy

While there has been a remarkable advancement in the understanding of complex mechanisms involved in allergic sensitisation and disease, there is still a large gap between theoretical knowledge and practical benefit to patients, as shown in this volume.

The editors would like to thank the participants, invited speakers, poster presenters, chair persons and all those involved in the organi-

sation of the symposium in Davos, especially Mrs. Nora Enderlein and Dr. Ulf Darsow and co-workers both from the Department of Dermatology and Allergy Biederstein at the Technical University in Munich and the „Deutsche Klinik für Dermatologie und Allergie Alexanderhaus-Klinik“ in Davos. Thanks also to Mrs. Wenger from Davos Tourism.

The scientific part of the symposium was enriched by the musical „The Odyssey of Allergy“ performed by co-workers of the Munich Department, which allowed a humorous look at our human and scientific endeavours in allergology.

We hope that this book contributes to the better understanding of allergy for the benefit of the increasing number of patients worldwide.

Munich, March 2002

JOHANNES RING
HEIDRUN BEHRENDT

New Trends in Allergy V
Ring, J.; Behrendt, H. (Eds.)
2002, XVI, 301 p., Hardcover
ISBN: 978-3-540-43082-7