

THE JOURNAL OF Allergy AND Clinical Immunology

VOLUME 125 • NUMBER 3



AMERICAN ACADEMY OF ALLERGY
ASTHMA & IMMUNOLOGY

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF ALLERGY, ASTHMA & IMMUNOLOGY

News beyond our pages

519

Marc E. Rothenberg, MD, PhD, and Jean Bousquet, MD, Editors

Reviews and feature articles

Clinical reviews in allergy and immunology

Achieving asthma control in the inner city: Do the National Institutes of Health Asthma Guidelines really work?

521

Stanley J. Szeffler, MD, Peter J. Gergen, MD, MPH, Herman Mitchell, PhD, and Wayne Morgan, MD, Denver, Colo, Bethesda, Md, Chapel Hill, NC, and Tucson, Ariz

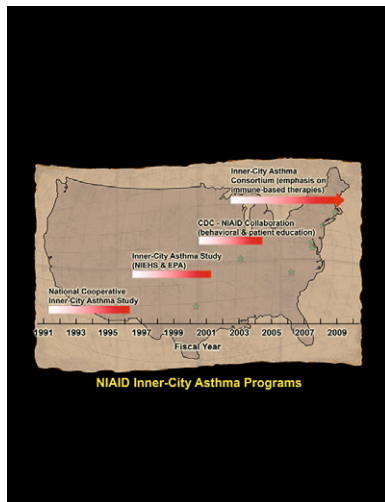
Continuing Medical Education examination: Achieving asthma control in the inner city: Do the National Institutes of Health Asthma Guidelines really work?

527

Continued on page 10A



This month's theme: **Inner-city asthma**



About the cover

This month's issue is focused on inner-city asthma and provides a summary of key findings from inner-city asthma programs supported by the National Institute of Allergy and Infectious Diseases. The cover summarizes a timeline of four important programs designed to address the needs of asthmatics in the inner city, including the National Cooperative Inner-City Asthma Study, the Inner-City Asthma Study, the CDC-NIAID Collaboration focused on behavior and patient education, and the ongoing Inner City Asthma Consortium (ICAC). The ICAC is focused on the application of immune-based therapies to manage in the inner city.

Presented in this issue is a series of reviews profiling important information related to the management of asthma in inner-city children and young adults. Dr William Busse (p 529) discusses the aspects of the inner city that contribute to differences in management between those who are and those who are not part of the inner city. Dr James Gern (p 545) presents the natural history of asthma, focusing in particular on a study in progress that is closely examining a birth cohort derived from the inner city. In addition, Dr Stanley Szeffler and his colleagues from the ICAC (p 521) review their experience in achieving asthma control in the inner city by applying a guidelines-based approach to management. The NIAID and investigators

who have implemented and administered the programs have contributed significantly to our understanding of asthma in the inner city as they continue to explore applications of immune-based therapy. These and other articles relevant to the theme are noted in the Table of Contents by a red starburst icon.

Cover concept by Drs Stanley Szeffler, Peter Gergen and Herman Mitchell. Adapted for the cover by JDI, LLC.



© 2010 American Academy of Allergy, Asthma & Immunology

The Journal of Allergy and Clinical Immunology (ISSN: 0091-6749) is published monthly by Elsevier Inc., 360 Park Avenue South, New York, NY 10010-1710. Periodicals postage paid at New York, NY and additional mailing offices. POSTMASTER: Send address changes to The Journal of Allergy and Clinical Immunology, Elsevier Health Sciences Division, Subscription Customer Service, 3251 Riverport Lane, Maryland Heights, MO 63043.



CONTENTS

CONTINUED

Mechanisms of allergic diseases

-  The National Institutes of Allergy and Infectious Diseases networks on asthma in inner-city children: An approach to improved care **529**
William W. Busse, MD, Madison, Wis
-  *Continuing Medical Education examination: The National Institutes of Allergy and Infectious Diseases networks on asthma in inner-city children: An approach to improved care* **538**

Current perspectives

-  Asthma in the inner city: The perspective of the National Institute of Allergy and Infectious Diseases **540**
Alkis Togias, MD, Matthew J. Fenton, PhD, Peter J. Gergen, MD, Daniel Rotrosen, MD, and Anthony S. Fauci, MD, Bethesda, Md
-  The Urban Environment and Childhood Asthma Study **545**
James E. Gern, MD, Madison, Wis
- Social stress and asthma: The role of corticosteroid insensitivity **550**
Angela Haczku, MD, PhD, and Reynold A. Panettieri, Jr, MD, Philadelphia, Pa
This article has been selected for the JACI Journal Club blog. Visit www.jaci-online.blogspot.com to join the discussion.

Advances in allergy, asthma, and immunology series 2010

- Advances in environmental and occupational respiratory diseases in 2009 **559**
David B. Peden, MD, and Robert K. Bush, MD, Chapel Hill, NC, and Madison, Wis
- Advances in basic and clinical immunology in 2009 **563**
Javier Chinen, MD, PhD, and William T. Shearer, MD, PhD, Houston, Tex

Continued on page 12A

The Journal of Allergy and Clinical Immunology posts in-press articles online in advance of their appearance in the print edition of the Journal. They are available at the JACI Web site at www.jacionline.org at the "Articles in Press" link, as well as at Elsevier's ScienceDirect Web site, www.sciencedirect.com. Each print article will acknowledge the e-publication date (the date when the article first appeared online). As soon as an article is published online, it is fully citable through use of its Digital Object Identifier (DOI). Please visit the JACI Web site and view our hot-off-the-wire articles through the "Articles in Press" link.



Editors' Choice



Online Repository material



Video available online at www.jacionline.org



Theme article



CME activity available online at www.jacionline.org

CONTENTS

CONTINUED

Rostrum

OR

- Speaking the same language: The World Allergy Organization Subcutaneous Immunotherapy Systemic Reaction Grading System 569

Linda Cox, MD, Desiree Larenas-Linnemann, MD, Richard F. Lockey, MD, and Giovanni Passalacqua, MD, Editors, Davie and Tampa, Fla, Mexico City, Mexico, and Genoa, Italy

This article has been selected for the JACI Journal Club blog. Visit www.jaci-online.blogspot.com to join the discussion.

Work force report



- Pest and allergen exposure and abatement in inner-city asthma: A Work Group Report of the American Academy of Allergy, Asthma & Immunology Indoor Allergy/Air Pollution Committee 575

William J. Sheehan, MD, Pitud A. Rangsihienchai, MD, MA, Robert A. Wood, MD, Don Rivard, BA, RIPMP, Sasawan Chinratanasit, MD, Matthew S. Perzanowski, PhD, MPH, Ginger L. Chew, ScD, James M. Seltzer, MD, Elizabeth C. Matsui, MD, MHS, and Wanda Phipatanakul, MD, MS, Boston, Waltham, and Worcester, Mass, Evanston, Ill, Baltimore, Md, Bangkok, Thailand, and New York, NY

The Editors' Choice

582

Donald Y. M. Leung, MD, PhD, Stanley J. Szeftel, MD, and the Associate Editors of the JACI

Asthma and lower airway disease



- Asthma control, adiposity, and adipokines among inner-city adolescents 584

Meyer Kattan, MD, CM, Rajesh Kumar, MD, Gordon R. Bloomberg, MD, Herman E. Mitchell, PhD, Agustin Calatroni, MA, MS, Peter J. Gergen, MD, MPH, Carolyn M. Kerckmar, MD, Cynthia M. Visness, PhD, Elizabeth C. Matsui, MD, Suzanne F. Steinbach, MD, Stanley J. Szeftel, MD, Christine A. Sorkness, PharmD, Wayne J. Morgan, MD, CM, Stephen J. Teach, MD, MPH, and Vanthaya N. Gan, MD, New York, NY, Chicago, Ill, St Louis, Mo, Chapel Hill, NC, Bethesda, Md, Cincinnati, Ohio, Baltimore, Md, Boston, Mass, Denver, Colo, Madison, Wis, Tucson, Ariz, Washington, DC, and Dallas, Tex

In a large, closely monitored population of adolescents with moderate-to-severe asthma, the role of adiposity, as measured based on BMI and percentage body fat, is shown to influence asthma control in female subjects but not in male subjects, whereas adiponectin is associated with improved control independent of adiposity for male subjects.



- Differential effects of outdoor versus indoor fungal spores on asthma morbidity in inner-city children 593

Jacqueline A. Pongratic, MD, George T. O'Connor, MD, MS, Michael L. Muilenberg, MS, Ben Vaughn, MS, Diane R. Gold, MD, MPH, Meyer Kattan, MD, CM, Wayne J. Morgan, MD, CM, Rebecca S. Gruchalla, MD, PhD, Ernestine Smartt, RN, and Herman E. Mitchell, PhD, Chicago, Ill, Boston and Amherst, Mass, Chapel Hill, NC, New York, NY, Tucson, Ariz, Dallas, Tex, and Bethesda, Md

In inner-city children with asthma and sensitization to fungal allergens, outdoor fungal exposure adversely affects asthma symptoms, whereas indoor exposure appears to increase exacerbations.

This article has been selected for the JACI Journal Club blog. Visit www.jaci-online.blogspot.com to join the discussion.

Continued on page 14A

CONTENTS

CONTINUED

- OR** Overall asthma control: The relationship between current control and future risk **600**
Eric D. Bateman, MD, Helen K. Reddel, MBBS, PhD, FRACP, Göran Eriksson, MB, PhD, Stefan Peterson, PhD, Ollie Östlund, PhD, Malcolm R. Sears, MB, FRACP, FRCPC, Christine Jenkins, MD, FRACP, Marc Humbert, MD, Roland Buhl, MD, Tim W. Harrison, MD, Santiago Quirce, MD, PhD, and Paul M. O'Byrne, MB, FRCP(C), Cape Town, South Africa, Sydney, Australia, Lund, Sweden, Hamilton, Ontario, Canada, Clamart, France, Mainz, Germany, Nottingham, United Kingdom, and Madrid, Spain
High levels of current control of asthma reduce future risk of instability and exacerbations. For each level of current control, budesonide/formoterol maintenance and reliever therapy achieve further reductions in exacerbations.
- Editorial: SMART isn't* **609**
Kenneth R. Chapman, MD, MSc, FRCPC, FACP, Toronto, Ontario, Canada
- Inflammation and airway function in the lung periphery of patients with stable asthma **611**
Sylvia Verbanck, PhD, Daniel Schuermans, RN, and Walter Vincken, MD, PhD, Brussels, Belgium
Simultaneous measurement of airway function and inflammation indicates that despite being stable, patients with asthma on high doses of inhaled steroids could benefit from alternative therapies specifically targeted at the lung periphery.
- OR** Early-life chlamydial lung infection enhances allergic airways disease through age-dependent differences in immunopathology **617**
Jay C. Horvat, PhD, Malcolm R. Starkey, BBioMedSci(Hon), Richard Y. Kim, BBioMedSci(Hon), Simon Phipps, PhD, Peter G. Gibson, MBBS, Kenneth W. Beagley, PhD, Paul S. Foster, PhD, and Philip M. Hansbro, PhD, Newcastle and Kelvin Grove, Australia
Early-life chlamydial lung infection drives permanent alterations in immunity and lung function and structure, identifying the mechanisms of how chlamydial infections may be associated with asthma.
- Beneficial effects of high dose of L-arginine on airway hyperresponsiveness and airway inflammation in a murine model of asthma **626**
Ulaganathan Mabalirajan, MBBS, Tanveer Ahmad, MSc, Geeta Devi Leishangthem, MVSc, Duraisamy Arul Joseph, MSc, Amit Kumar Dinda, MD, PhD, Anurag Agrawal, MD, PhD, and Balaram Ghosh, PhD, Delhi and New Delhi, India
This study revealed that high-dose L-arginine administration increases exhaled nitric oxide, endothelial nitric oxide synthase expression, and cyclic guanosine monophosphate levels; reduces inducible nitric oxide synthase expression and nitro-oxidative stress in lung; and alleviates airway hyperresponsiveness and airway inflammation in a murine model of asthma.
- EC** Regional and racial disparities in asthma hospitalizations in Mississippi **636**
Sitesh Ranen Roy, MD, Emma Elizabeth McGinty, MS, CHES, AE-C, Sandra Carr Hayes, MPH, DrPH(c), and Lei Zhang, PhD, MBA, Jackson and Tougaloo, Miss and Atlanta, Ga
The authors discovered higher odds of multiple asthma hospitalizations for residents of the Delta (rural) than for residents of the Jackson Metropolitan Statistical Area (urban), independent of race, sex, age, or income.

Continued on page 16A

CONTENTS

CONTINUED



Cost-effectiveness of school-based asthma screening in an urban setting 643

Joe K. Gerald, MD, PhD, Roni Grad, MD, William C. Bailey, MD, and Lynn B. Gerald, MSPH, PhD, Tucson, Ariz, and Birmingham, Ala

Given the existing health system, school-based asthma screening is unlikely to be cost-effective. Targeting children with previously diagnosed asthma at risk of poor control and strengthening links between screening and treatment might yield future cost-effective approaches.

Editorial: The opportunity costs of screening children for asthma 651

Sean McElligott, MS, and Daniel Polsky, PhD, Philadelphia, Pa



Toward improved prediction of risk for atopy and asthma among preschoolers: A prospective cohort study 653



Patrick G. Holt, FAA, Julie Rowe, PhD, Merci Kusel, MBBS, Faith Parsons, BSc, Elysia Hollams, PhD, Anthony Bosco, PhD, Kathy McKenna, PhD, Lily Subrata, PhD, Nicholas de Klerk, PhD, Michael Serralha, BSc(Hons), Barbara J. Holt, BSc, Guicheng Zhang, PhD, Richard Loh, FRACP, Staffan Ahlstedt, PhD, and Peter D. Sly, FRACP, Perth and West Perth, Australia, and Uppsala and Stockholm, Sweden

An algorithm combining house dust mite-specific IgE at the age of 2 years and recurrent lower respiratory tract infections in early life identifies children with a high risk of persistent allergic sensitization and persistent asthma.

Rhinitis, sinusitis, and upper airway disease



Sublingual immunotherapy in patients with allergic rhinoconjunctivitis caused by ragweed pollen 660

David Skoner, MD, Deborah Gentile, MD, Robert Bush, MD, Mary Beth Fasano, MD, Anne McLaughlin, MD, and Robert E. Esch, PhD, Pittsburgh, Pa, Madison, Wis, Iowa City, Iowa, Evansville, Ind, and Lenoir, NC

Sublingual standardized glycerinated short ragweed pollen allergenic extract administered at maintenance doses of 4.8 to 48 µg Amb a 1/d is safe and may be effective in patients with rhinoconjunctivitis caused by ragweed pollen.



Evidence for diminished levels of epithelial psoriasin and calprotectin in chronic rhinosinusitis 667

David D. Tieu, MD, Anju T. Peters, MD, Roderick T. Carter, BS, Lydia Sub, BS, David B. Conley, MD, Rakesh Chandra, MD, James Norton, MS, Leslie C. Grammer, MD, Kathleen E. Harris, BS, Atsushi Kato, PhD, Robert C. Kern, MD, and Robert P. Schleimer, PhD, Chicago, Ill

Epithelial expression of S100 host defense proteins is reduced in the nose and sinuses of patients with chronic rhinosinusitis.

Atopic dermatitis and skin disease



The effectiveness of levocetirizine and desloratadine in up to 4 times conventional doses in difficult-to-treat urticaria 676

Maria Staevska, MD, Todor A. Popov, MD, PhD, Tanya Kralimarkova, MD, Cvetelina Lazarova, MD, Steliana Kraeva, MD, Dora Popova, MD, PhD, Diana S. Church, MD, Vasil Dimitrov, MD, and Martin K. Church, PhD, DSc, Sofia, Bulgaria, Southampton, United Kingdom, and Berlin, Germany

This study supports European guidelines by showing that increasing H₁-antihistamine dosage up to 4-fold improved urticarial symptoms and quality of life but did not increase somnolence in approximately three fourths of patients with difficult-to-treat chronic urticaria.

Continued on page 17A

CONTENTS

CONTINUED

Food, drug, insect sting allergy, and anaphylaxis

The natural history of soy allergy 683

Jessica H. Savage, MD, Allison J. Kaeding, BS, Elizabeth C. Matsui, MD, MHS, and Robert A. Wood, MD, Baltimore, Md

This large retrospective study showed that a majority of patients with soy allergy will have soy tolerance, although the rate of tolerance development is much slower than described previously.

OR Component-resolved diagnosis of kiwifruit allergy with purified natural and recombinant kiwifruit allergens 687

Merima Bublin, PhD, Marina Pfister, MD, Christian Radauer, PhD, Christina Oberhuber, PhD, Sean Bulley, PhD, Åsa Marknell DeWitt, PhD, Jonas Lidholm, PhD, Gerald Reese, PhD, Stefan Vieths, PhD, Heimo Breiteneder, PhD, Karin Hoffmann-Sommergruber, PhD, and Barbara K. Ballmer-Weber, MD, Vienna, Austria, Zurich, Switzerland, Auckland, New Zealand, Uppsala, Sweden, and Langen, Germany

Kiwifruit allergen ImmunoCAP provides a highly sensitive tool for diagnosis of kiwifruit allergy. Bet v 1 homolog and profilin are important allergens in polysensitized patients, whereas actinidin is important in kiwifruit-monosensitized patients.

OR Correlation of IgE/IgG4 milk epitopes and affinity of milk-specific IgE antibodies with different phenotypes of clinical milk allergy 695

Julie Wang, MD, Jing Lin, PhD, Ludmilla Bardina, MSc, Marina Goldis, MD, Anna Nowak-Węgrzyn, MD, Wayne G. Shreffler, MD, PhD, and Hugh A. Sampson, MD, New York, NY, and Boston, Mass

Through use of a peptide microarray assay, IgE epitope diversity and affinity were found to correlate with different clinical phenotypes and severity of milk allergy. This might be useful to provide prognostic information regarding milk allergy.

Mechanisms of allergy and clinical immunology

OR CD94/NKG2C is a killer effector molecule in patients with Stevens-Johnson syndrome and toxic epidermal necrolysis 703

Esther Morel, PhD, Salvador Escamochero, BS, Rosario Cabañas, MD, PhD, Rosa Díaz, MD, PhD, Ana Fiandor, MD, and Teresa Bellón, PhD, Madrid, Spain

High frequencies of CD94/NKG2C⁺ cells are found in blister fluid and peripheral blood of patients with Stevens-Johnson syndrome/toxic epidermal necrolysis during the acute disease. The expression of the nonclassical HLA-Ib molecule HLA-E sensitizes keratinocytes to killing by CD94/NKG2C⁺ cytotoxic lymphocytes in these patients.

OR Naturally processed T cell–activating peptides of the major birch pollen allergen 711

Sonja Mutschlechner, PhD, Matthias Egger, PhD, Peter Briza, PhD, Michael Wallner, PhD, Peter Lackner, PhD, Anette Karle, PhD, Anne B. Vogt, PhD, Gottfried F. Fischer, MD, Barbara Bohle, PhD, and Fatima Ferreira, PhD, Salzburg and Vienna, Austria, and Basel, Switzerland

This study reports for the first time sequences of naturally processed, T cell–activating, allergen-derived peptides and sheds light on the process of epitope generation and selection for presentation to CD4⁺ T lymphocytes.

Continued on page 18A

CONTENTS

CONTINUED

- OR** Mast cells from different molecular and prognostic subtypes of systemic mastocytosis display distinct immunophenotypes **719**
Cristina Teodosio, MSc, Andrés C. García-Montero, PhD, María Jara-Acevedo, MSc, Laura Sánchez-Muñoz, MD, PhD, Ivan Álvarez-Twose, MD, Rosa Núñez, MD, Lawrence B. Schwartz, MD, PhD, Andrew F. Walls, PhD, Luis Escribano, MD, PhD, and Alberto Orfão, MD, PhD, Salamanca, Toledo, and Madrid, Spain, Richmond, Va, and Southampton, United Kingdom
Bone marrow mast cells from systemic mastocytosis display 3 different immunophenotypic profiles that correlate both with KIT mutational status and the clinical behavior of the disease.
- EC** Induction of anergic allergen-specific suppressor T cells using tolerogenic dendritic cells derived from children with allergies to house dust mites **727**
Valentina Pacciani, PhD, Silvia Gregori, PhD, Loredana Chini, MD, Stefania Corrente, MD, Marco Chianca, MD, Viviana Moschese, MD, Paolo Rossi, MD, PhD, Maria Grazia Roncarolo, MD, and Federica Angelini, MD, PhD, Rome and Milan, Italy
The authors report for the first time that tolerogenic dendritic cells can be used to generate, *in vitro*, allergen-specific suppressor T cells that can be used to re-establish tolerance in patients with allergy.
- EC** A novel allergen-specific therapy for allergy using CD40-silenced dendritic cells **737**
OR
Motohiko Suzuki, MD, PhD, Xiufen Zheng, PhD, Xusheng Zhang, MD, PhD, Zhu-Xu Zhang, PhD, Thomas E. Ichim, PhD, Hongtao Sun, PhD, Yoshihisa Nakamura, MD, PhD, Akira Inagaki, MD, PhD, Marianne Beduhn, BS, Aminah Shunnar, BS, Bertha Garcia, PhD, and Wei-Ping Min, MD, PhD, London, Ontario, Canada, Nagoya, Japan, and San Diego, Calif
The finding that CD40-silenced and ovalbumin (OVA)-pulsed dendritic cells inhibited only OVA-specific allergic responses suggests the possibility of allergen-specific therapy for allergic diseases.

Letters to the Editor

- OR** Atopic dermatitis keratinocytes exhibit normal T_H17 cytokine responses **744**
Kristine E. Nogralas, MD, Mayte Suárez-Fariñas, PhD, Avner Shemer, MD, Judilyn Fuentes-Duculan, MD, Andrea Chiricozzi, Irma Cardinale, MSc, Lisa C. Zaba, MD, PhD, Toyoko Kikuchi, MSc, Michal Ramon, MD, Reuven Bergman, MD, James G. Krueger, MD, PhD, and Emma Guttman-Yassky, MD, MSc, New York, NY, Ramat-Gan and Haifa, Israel, and Tor Vergata, Italy
Keratinocytes from chronic atopic dermatitis lesions express fully functional IL-17 receptors. Thus, the relative deficiency of antimicrobial proteins in atopic dermatitis is derived from low IL-17 levels compounded by further suppressive action by T_H2 cytokines.
- UV-B-triggered induction of vitamin D3 metabolism differentially affects antimicrobial peptide expression in keratinocytes **746**
Mark Peric, PhD, Bodo Lehmann, PhD, Gabriela Vashina, MD, Yvonne Dombrowski, PhD, Sarah Koglin, Michael Meurer, MD, Thomas Ruzicka, MD, and Jürgen Schaubert, MD, Munich, Germany
UV-B irradiation of human keratinocytes supplemented with 7-dehydrocholesterol triggers synthesis of hormonally active 1 α ,25-dihydroxyvitamin D3, which then differentially affects expression of human β -defensin 2 and cathelicidin—2 antimicrobial peptides and important mediators of cutaneous innate immunity.

Continued on page 20A

CONTENTS

CONTINUED

- OR** Ovalbumin content in 2009 to 2010 seasonal and H1N1 monovalent influenza vaccines **749**
Kirk H. Waibel, MD, and Robert Gomez, BS, Fort Sam Houston and Lackland Air Force Base, Tex
Egg allergy is currently a contraindication to receiving the influenza vaccine. However, many 2009 to 2010 seasonal and H1N1 influenza vaccines were found to have low ovalbumin content that would be tolerated by individuals with egg allergy.
- Adolescents with asthma or atopic eczema have more febrile days in early childhood: A possible explanation for the connection between paracetamol and asthma? **751**
Terhi Tapiainen, MD, PhD, Teija Dunder, MD, PhD, Merja Möttönen, MD, PhD, Tytti Pokka, BSc, and Matti Ubari, MD, PhD, Oulu, Finland
Adolescents with asthma had 2.72 (95% CI, 0.23-5.20) more febrile days per person-year at risk in early childhood than healthy adolescents in this prospective survey, implying that studies on paracetamol and asthma might be confounded.
- Increased IL-33 expression by epithelial cells in bronchial asthma **752**
David Préfontaine, MSc, Jessica Nadigel, BSc, Fazila Chouiali, MSc, Séverine Audusseau, MSc, Abdelhabib Semlali, PhD, Jamila Chakir, PhD, James G. Martin, MD, DSc, and Qutayba Hamid, MD, PhD, Montreal, Quebec, Canada
The authors demonstrate elevated expression of IL-33 cytokine in bronchial epithelial cells from subjects with asthma compared with control subjects. This work proposes IL-33 levels in bronchoalveolar fluid and its expression by epithelium as inflammatory markers associated with moderate and severe asthma.
- OR** Polymorphisms of chitinases are not associated with asthma **754**
Ann Chen Wu, MD, MPH, Jessica Lasky-Su, PhD, Christine A. Rogers, PhD, Barbara J. Klanderman, PhD, and Augusto Litonjua, MD, MPH, Boston and Amherst, Mass
Despite the potential role of chitinases and chitinase-like proteins in the pathogenesis of asthma, variants in their respective genes are not associated with asthma, changes in lung physiology, or allergy-related phenotypes in white children.
- Evidence for neuronal expression of functional Fc (ϵ and γ) receptors **757**
Hanneke van der Kleij, PhD, Nicolas Charles, PhD, Khalil Karimi, PhD, Yu-Kang Mao, MD, Jane Foster, PhD, Luke Janssen, PhD, Ping Chang Yang, MD, Wolfgang Kunze, PhD, Juan Rivera, PhD, and John Bienenstock, MD, Hamilton, Ontario, Canada, and Bethesda, Md
The authors report that neurons express functional Fc receptors (including Fc ϵ R1) that can be activated by antigen and transmit signals along nerve fibers *in vitro* and *in vivo*. These results open new avenues of investigation in neurogenic inflammation and allergic diseases.
- Ethnic differences in asthma–panic disorder comorbidity **760**
Jonathan M. Feldman, PhD, Lauren Mayefsky, MA, Lacey Beckmann, BS, Paul M. Lehrer, PhD, Denise Serebrisky, MD, and Chang Shim, MD, Bronx, NY, and Piscataway, NJ
Puerto Rican patients with asthma were more likely to have panic disorder than African American patients after controlling for asthma severity. Daily use of albuterol and Spanish as primary language were also linked with panic disorder.

Continued on page 22A

CONTENTS

CONTINUED

- OR** Serum ferritin and transferrin levels are not serologic markers of toluene diisocyanate–induced occupational asthma 762

Joaquín Sastre, MD, PhD, Beatriz Sastre, BSc, Mar Fernández-Nieto, MD, Ignacio Pérez-Camo, MD, José Javier Sánchez, MD, PhD, and Victoria del Pozo, PhD, Madrid and Zaragoza, Spain

This study does not confirm the usefulness of serum ferritin and transferrin values as serologic markers for identifying toluene diisocyanate occupational asthma.

Correspondence

- Cats and dogs: An attractive remedy versus atopy? 765

Oreste V. Brenna, PhD, Milan, Italy

- Reply 765

Robert J. Hancox, MD, Piush J. Mandhane, MD, and Malcolm R. Sears, MB, Dunedin, New Zealand, and Edmonton, Alberta, and Hamilton, Ontario, Canada

- Reply 765

Päivi M. Salo, PhD, and Darryl C. Zeldin, MD, Research Triangle Park, NC

- Trichuris suis* might be effective in treating allergic rhinitis 766

Robert W. Summers, MD, David E. Elliott, MD, PhD, and Joel V. Weinstock, MD, Iowa City, Iowa, and Boston, Mass

- Looking into the future of *Trichuris suis* therapy 767

Matthew R. Hepworth, PhD, Eckard Hamelmann, MD, Richard Lucius, PhD, and Susanne Hartmann, PhD, Berlin and Bochum, Germany

- Reply 768

Peter Bager, PhD, Jan Wohlfahrt, PhD, Bjarne Kristensen, MSc, Lars K. Poulsen, PhD, and Mads Melbye, DMSc, Copenhagen and Allerød, Denmark

- Obesity and asthma control in an urban population 769

Claude S. Farah, BSc(Med), MB, BS, FRACP, Louis-Philippe Boulet, MD, FRCPC, FCCP, and Helen K. Reddel, MB, BS, PhD, FRACP, Sydney, Australia, and Quebec City, Quebec, Canada

- Reply 770

E. M. Clerisme-Beaty, MD, MHS, Cynthia S. Rand, PhD, and Gregory B. Diette, MD, MHS, Baltimore, Md

Corrections

- Large deletions and point mutations involving the dedicator of cytokinesis 8 (DOCK8) in the autosomal-recessive form of hyper-IgE syndrome 743

(Engelhardt KR, McGhee S, Winkler S, Sassi A, Woellner C, Lopez-Herrera G, Chen A, et al. 2009;124:1289-302).

- Primary immunodeficiencies: 2009 update 771

(Notarangelo LD, Fischer A, Geha RS, Casanova J-L, Chapel H, Conley ME, et al. 2009;124:1161-78).

Continued on page 24A

CONTENTS

CONTINUED

Reader services

Instructions for authors	www.jacionline.org
Information for readers	31A
Footnotes—American Academy of Allergy, Asthma & Immunology	32A
CME calendar—American Academy of Allergy, Asthma & Immunology	37A
Professional opportunities	39A
Change of address	666



ALLERGY ARCHIVES

INNER CITY ASTHMA, INTRODUCTORY NOTE

The adverse effect of certain qualities of urban locales was recognized as early as the 12th century in the writings of philosopher, Talmudic scholar, rabbi, and physician Moses Maimonides (1135-1204 CE). As chief physician in the court of Sultan Salah Ed-Din Al-Ayyubi (Saladin), Maimonides took charge of the management of asthma that affected prince Al-Afdal, Saladin's eldest son and successor to his rule. In his *Treatise on Asthma*, a compilation of advisory letters to Al-Afdal, Maimonides noted that "his Highness had confided that the air of Alexandria is harmful to you and whenever you fear an attack of the illness you prefer to move to Cairo where the air is much dryer and calmer, making the attack more tolerable for you."¹

Twentieth-century investigative studies demonstrated particular circumstances of inner-city and poverty-stricken housing conditions, effects of industrialization, and climatic and environmental influences on urban-related asthma. Brief accounts summarizing highlights of representative reports can be found in various sections of this thematic issue (see pages 537, 562, 599, and 608). (Images are courtesy of the National Library of Medicine collection.)

1. Muntner S, editor. The medical writings of Moses Maimonides. Volume I. *Treatise on asthma*. Philadelphia: JB Lippincott; 1963.

Sheldon G. Cohen, MD
Joy C. Mazzullo, BA
National Institute of Allergy
and Infectious Diseases
National Institutes of Health
Bethesda, Md

Continuing Medical Education (CME) credit is available to readers who successfully complete examinations accompanying the articles in the monthly series *Clinical Reviews in Allergy and Immunology* and *Mechanisms of Allergic Diseases*. This CME opportunity furthers the joint educational goals of the Journal and its sponsoring foundation, the American Academy of Allergy, Asthma & Immunology (AAAAI). Learning objectives, examination questions, and full details appear in each review article in the print and online Journal. The self-directed examinations can be taken at the JACI Web site (www.jacionline.org). Credit is administered by the AAAAI.

Statements and opinions expressed in the articles and communications herein are those of the author(s) and not necessarily those of the Editor, publisher, or the American Academy of Allergy, Asthma & Immunology. The Editor, publisher, and the American Academy of Allergy, Asthma & Immunology disclaim any responsibility or liability for such material and do not guarantee, warrant, or endorse any product or service advertised in this publication, nor do they guarantee any claim made by the manufacturer of such product or service.