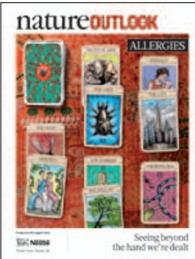


nature OUTLOOK

ALLERGIES

24 November 2011 / Vol 479 / Issue No. 7374



COVER ART: NIK SPENCER

Editorial

Herb Brody, Michelle Grayson, Roger East, Tony Scully

Art & Design

Wes Fernandes, Alasdair Macdonald, Kate Duncan

Production

Donald McDonald, Emilia Orviss, Leonora Dawson-Bowling, Stephen Russell

Sponsorship

Reya Silao, Yvette Smith, Gerard Preston

Marketing

Elena Woodstock, Hannah Phipps

Project Managers

Helen Anthony, Claudia Deasy

Art Director

Kelly Buckheit Krause

Magazine Editor

Tim Appenzeller

Editor-in-Chief

Philip Campbell

Our picture of allergy is changing. For one thing there is a dramatic rise in prevalence. Eczema, hay fever, asthma, and potentially life-threatening allergies to certain foods, drugs or other substances, have become alarmingly common: the *World Allergy Organization White Book on Allergy 2011–2012* estimates that about 30–40% of the world's population is affected by one or more allergic conditions.

As allergies spread, our understanding of them is changing. For 40 years, from its first identification in the 1960s, immunoglobulin E (IgE) was the focus of the field. As the physiological processes of hypersensitive reaction were described, chemical mediators identified and drivers of those mechanisms pinned down, it began to look as though control of the IgE pathways would open the way to allergy prevention and effective therapies. Epidemiology could also expect more evidence from geneticists equipped with new tools for hypothesis-free association studies thanks to advances in genome sequencing (page S10). This *Outlook*, however, is not a triumphant account of strategies that overcame allergy. Recent exploration of the complexities of the adaptive immune system has turned some assumptions about allergies upside down, and researchers are swimming in unfamiliar waters.

Asthma, for instance, develops and responds in many different ways, not all triggered by allergy. It is better understood not as one disease, but many (page S20). Defects in skin and other epithelial barriers, once considered as symptoms of allergy, are being re-evaluated as potential primary causes (page S12). And, while environmental and lifestyle changes have been linked to the rising prevalence of allergy (page S2), attention to the role of gut-dwelling microbes has given a new dimension to the concept of a crucial balance toppled, with the human body seen not as a single organism but a complex ecosystem (page S5).

We are pleased to acknowledge the financial support of Nestlé Research Center in producing this *Outlook*. As always, *Nature* retains sole responsibility for all editorial content.

Roger East

Consultant Editor

Nature Outlooks are sponsored supplements that aim to stimulate interest and debate around a subject of interest to the sponsor, while satisfying the editorial values of *Nature* and our readers' expectations. The boundaries of sponsor involvement are clearly delineated in the *Nature Outlook* Editorial guidelines available at http://www.nature.com/advertising/resources/pdf/outlook_guidelines.pdf

CITING THE OUTLOOK

Cite as a supplement to *Nature*, for example, *Nature* Vol XXX, No. XXXX Suppl, Sxx–Sxx (2011). To cite previously published articles from the collection, please use the original citation, which can be found at the start of each article.

VISIT THE OUTLOOK ONLINE

The *Nature Outlook Allergies* supplement can be found at <http://www.nature.com/nature/outlook/allergies>

All featured articles will be freely available for 6 months.

SUBSCRIPTIONS AND CUSTOMER SERVICES

For UK/Europe (excluding Japan): Nature Publishing Group, Subscriptions, Brunel Road, Basingstoke, Hants, RG21 6XS, UK. Tel: +44 (0) 1256 329242. Subscriptions and customer services for Americas – including Canada, Latin America and the Caribbean: Nature Publishing Group, 75 Varick St, 9th floor, New York, NY 10013-1917, USA. Tel: +1 866 363 7860 (US/Canada) or +1 212 726 9223 (outside US/Canada). Japan/China/Korea: Nature Publishing Group – Asia-Pacific, Chiyoda Building 5–6th Floor, 2–37 Ichigaya Tamachi, Shinjuku-ku, Tokyo, 162-0843, Japan. Tel: +81 3 3267 8751.

CUSTOMER SERVICES

Feedback@nature.com
Copyright © 2011 Nature Publishing Group

CONTENTS

S2 LIFESTYLE

When allergies go west

Modernity nurtures these afflictions

S5 MICROBIOME

Gut reaction

Our friendly bacteria might be of help

S8 FOOD

Picky eaters

Taking the sting out of risky morsels

S10 GENETICS

Seeking a gene genie

Clues to who is prone are painting a bigger picture than anybody envisaged

S12 SKIN

Into the breach

A radical new theory of allergic disease

S14 ATOPY

Marching with allergies

Living from one disorder to another

S16 PERSPECTIVE

Acting on the evidence

Hywel Williams

S17 TREATMENT

In search of a booster shot

From symptoms to the root of the problem

S20 ASTHMA

Breathing new life into research

Recent insights are redefining the condition

S22 PERSPECTIVE

A human touch

Stephen Holgate

COLLECTION

S23 TSLP promotes interleukin-3-

independent basophil haematopoiesis

and type 2 inflammation

M. C. Siracusa *et al.*

S28 Peripheral education of the immune system by colonic commensal microbiota

S. K. Lathrop *et al.*

S33 Peaceful death ends pain

Y. Bordon

S34 Farm living: effects on childhood asthma and allergy

E. von Mutius and D. Vercelli

S42 Stop the killing of beneficial bacteria

M. Blaser