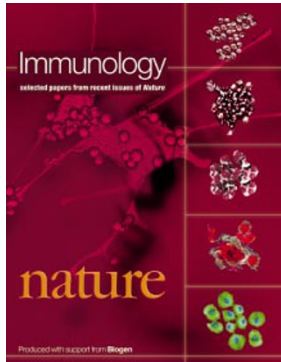


nature

www.nature.com

Immunology



Cover illustration

The transcription factor Pax5 determines B-cell lineage commitment by actively suppressing alternative lineage choices, so Pax5-deficient pro-B cells can take various differentiation pathways.

Nature London

Porters South, 4 Crinan St,
London N1 9XW, UK
Tel +44 171 833 4000
Fax +44 171 843 4596/7
e-mail: nature@nature.com
http://www.nature.com

Nature Washington

968 National Press Building,
529 14th St NW,
Washington DC 20045, USA
Tel +1 202 737 2355
Fax +1 202 628 1609
e-mail: nature@nature.com
http://www.nature.com

Nature Tokyo

Shin-Mitsuke Building (4F),
3-6 Ichigaya Tamachi,
Shinjuku-ku,
Tokyo 162, Japan
Tel +81 3 3267 8751
Fax +81 3 3267 8746
e-mail: nature@naturejpn.com
http://www.naturejpn.com



Macmillan Magazines Ltd

We live in a hostile world. Our cells and tissues provide a rich environment for a multitude of infectious agents which are kept at bay only as long as we maintain an effective defence system. The study of the nature and regulation of this defence constitutes the field of immunology. Many pathologies involve the immune system either directly or indirectly, and often their treatments are also immune-based. Furthermore, the basic unit of immune function, the lymphocyte, is arguably the most well-studied of eukaryotic cells. Thus immunology is at the centre of biomedical science.

And yet it is a peculiarly inaccessible field. Historically, immunology has relied on concepts to rationalize the great complexity of responses. Although immunologists are eager to revise their approximations in the light of new data, this ever-changing landscape makes it difficult for non-experts to identify exactly where the field stands at any given time. We predict a growing appreciation of the subject as the molecular basis of immunological concepts become more clearly defined.

This special collection of immunology papers, all of which have appeared in our pages in 1999, presents the breadth of the field, and we are very pleased to acknowledge Biogen, whose financial support has helped to make this supplement possible. Indeed, *Nature* has published many of the landmark studies over the past 40 years and we aim to continue to be at the forefront. This collection emphasizes our commitment. But it also marks a growing commitment by the Nature Publishing Group as a whole, which has made the decision to launch a new monthly journal, *Nature Immunology*. Readers of *Nature* will be kept abreast of our plans in that direction. We hope that you find the papers in this supplement to be a stimulating appetizer for more top-quality immunology that *Nature* looks forward to publishing in the future.

Philip Campbell Editor, *Nature*
Ursula Weiss Senior Editor

Editor, *Nature*:

Philip Campbell

Supplement Editor:

Ursula Weiss

Production Editor:

Simon Gribbin

Art Editor:

Majo Xeridat

Layout:

Nicola Barker

Production Manager:

Yvonne Strong

Publisher:

Liz Allen

news and views

3 Dual personality of memory T cells

Mackay, C. R.

5 Toll gates for pathogen selection

Ulevitch, R. J.

review article

6 Selecting and maintaining a diverse T-cell repertoire

Goldrath, A. W. & Bevan, M. J.

articles

14 Commitment to the B-lymphoid lineage depends on the transcription factor Pax5

Nutt, S. L., Heavey, B., Rolink, A. G. & Busslinger, M.

letters to nature

21 ICOS is an inducible T-cell co-stimulator structurally and functionally related to CD28

Hutloff, A., Dittrich, A. M., Beier, K. C., Eljaschewitsch, B., Kraft, R., Anagnostopoulos, I. & Kroccek, R. A.

25 Cytotoxic T-cell immunity to virus-infected non-haematopoietic cells requires presentation of exogenous antigen

Sigal, L. J., Crotty, S., Andino, R. & Rock, K. L.

29 Structure of the amino-terminal domain of Cbl complexed to its binding site on ZAP-70 kinase

Meng, W., Sawasdikosol, S., Burakoff, S. J. & Eck, M. J.

34 Two subsets of memory T lymphocytes with distinct homing potentials and effector functions

Sallusto, F., Lenig, D., Förster, R., Lipp, M. & Lanzavecchia, A.

39 The Toll-like receptor 2 is recruited to macrophage phagosomes and discriminates between pathogens

Underhill, D. M., Ozinsky, A., Hajjar, A. M., Stevens, A., Wilson, C. B., Bassetti, M. & Aderem, A.

43 Activated T cells regulate bone loss and joint destruction in adjuvant arthritis through osteoprotegerin ligand

Kong, Y.-Y., Feige, U., Sarosi, I., Bolon, B., Tafuri, A., Morony, S., Capparelli, C., Li, J., Elliott, R., McCabe, S., Wong, T., Campagnuolo, G., Moran, E., Bogoch, E. R., Van, G., Nguyen, L. T., Ohashi, P. S., Lacey, D. L., Fish, E., Boyle, W. J. & Penninger, J. M.

Nature® (ISSN 0028-0836) is published weekly on Thursday, except the last week in December, by Macmillan Magazines Ltd (Porters South, 4 Crinan Street, London N1 9XW). Registered as a newspaper at the British Post Office. Annual subscription for the Americas US\$595 (institutional/corporate), US\$159 (individual making personal payment). Canada residents please add 7% GST (No. 140911595). North and South American orders to: *Nature*, Subscription Dept, P. O. Box 5055, Brentwood, TN 37024-5055, USA. Other orders to *Nature*, Brunel Road, Basingstoke, Hants RG21 2XS, UK. Periodicals postage paid at New York, NY 10010-1707, and additional mailing offices. Authorization to photocopy material for internal or personal use, or internal or personal use of specific clients, is granted by *Nature* to libraries and others registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided the base fee of \$12.00 an article (or \$2.00 a page) is paid direct to CCC, 222 Rosewood Drive, Danvers, MA 01923, USA. Identification code for *Nature*: 0028-0836/99 \$12.00+\$2.00. US Postmaster send address changes to: *Nature*, PO Box 5055, Brentwood, TN 37024-5055. Published in Japan by Nature Japan K.K., Shin-Mitsuke Bldg. 36 Ichigaya Tamachi, Shinjuku-ku, Tokyo 162, Japan. © 1999 Macmillan Magazines Ltd.