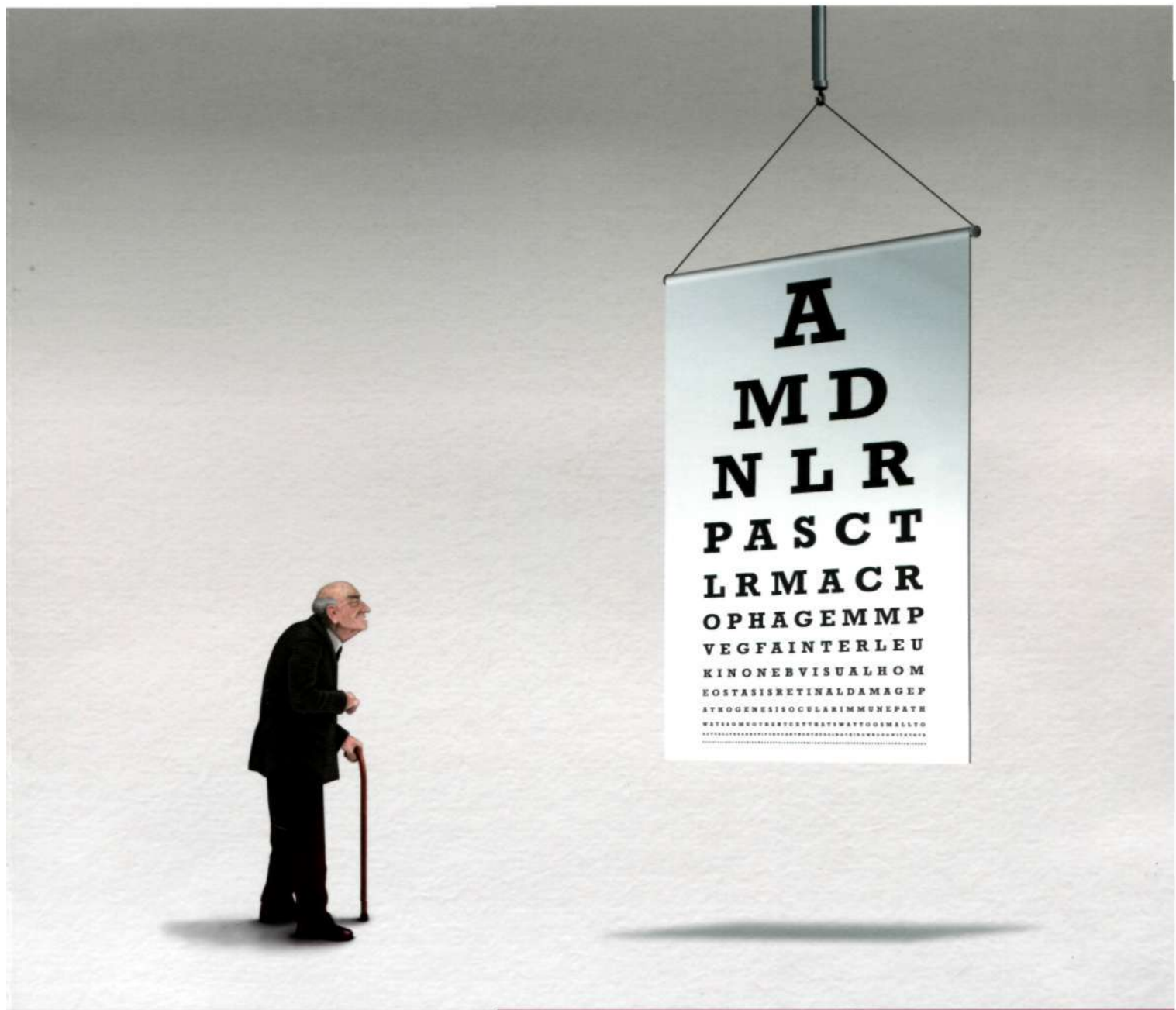


nature

REVIEWS

june 2013 volume 13 no. 6
www.nature.com/reviews

IMMUNOLOGY

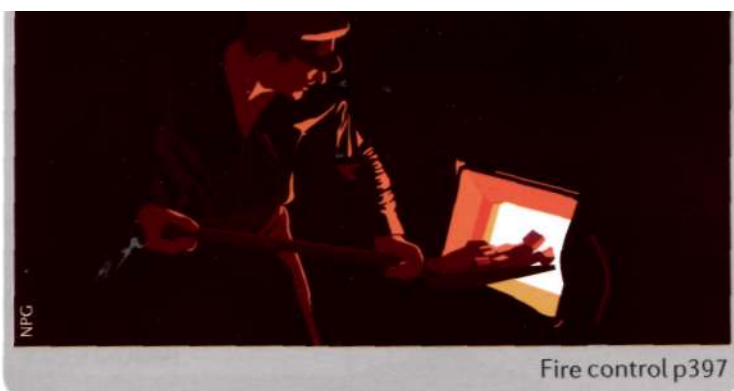


EYES ABLAZE

The inflammatory basis of age-related macular degeneration

Stepping up a Notch

Notch signalling moves beyond lymphocyte development



CONTENTS

June 2013
volume 13 no. 6

REVIEWS

397 Activation and regulation of the inflammasomes

Eicke Latz, T. Sam Xiao and Andrea Stutz

Inflammasomes are multiprotein signalling platforms that activate the highly pro-inflammatory cytokines interleukin-1 β (IL-1 β) and IL-18 and induce cell death in response to pathogens and sterile stressors. This Review provides a comprehensive overview of our rapidly evolving understanding of the regulatory mechanisms that control the activation of distinct inflammasome components, as well as the non-canonical processing of IL-1 β .

412 The good, the bad and the ugly — T_{FH} cells in human health and disease

FEATURED ARTICLE

Stuart G. Tangye, Cindy S. Ma, Robert Brink and Elissa K. Deenick

An increasing number of studies have highlighted novel aspects of the differentiation and function of T follicular helper (T_{FH}) cells. Tangye *et al.* discuss these recent findings with a particular focus on the role of human T_{FH} cells in disease pathogenesis.

427 Regulation of innate and adaptive immunity by Notch

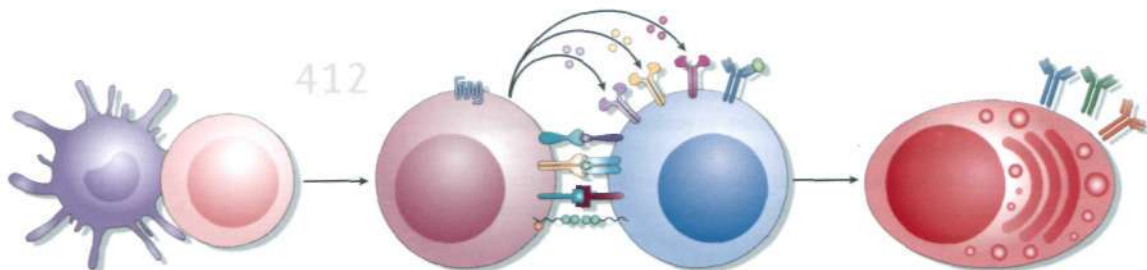
Freddy Radtke, H. Robson MacDonald and Fabienne Tacchini-Cottier

Notch signalling has well-described roles in lymphocyte development. More recently, it has become apparent that Notch is also crucial for innate immune cells and for mature lymphocyte responses. Here, the authors discuss our current understanding of how Notch contributes to both innate and adaptive immune responses.

438 Immunology of age-related macular degeneration

Jayakrishna Ambati, John P. Atkinson and Bradley D. Gelfand

Immune dysfunction is a recurring theme in the pathogenesis of age-related macular degeneration, which is the leading cause of blindness in aged individuals. Understanding the dual nature of ocular immune pathways in both visual homeostasis and retinal damage will aid the development of immune-based therapeutics for this disease.



On the web www.nature.com/reviews/immunol

Advance online publication

We operate an advance online publication (AOP) service for authors and readers to view the latest articles published online ahead of print.

Forthcoming articles:

Specificity through cooperation: BATF-IRF interactions control immune regulatory networks

Theresa L. Murphy, Roxane Tussiwand and Kenneth M. Murphy

How B cells capture, process and present antigens: a critical role for cell polarity
Maria-Isabel Yuseff, Paolo Pierobon, Anne Reversat and Ana-Maria Lennon-Duménil

Nature Reviews Immunology (ISSN 1471-1733, USPS 020129), is published monthly by Nature Publishing Group, Porters South, 4 Crinan Street, London N1 9XW. The 2013 US annual subscription price is \$4,677 (Full), \$265 (Personal 1 year) and \$199 (Student). Airfreight and mailing in the USA by agent named Air Business Ltd, c/o Worldnet Shipping Inc., 156-15, 149th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Periodicals postage paid at Jamaica NY 11431, US Postmaster: Send address changes to Nature Reviews Immunology, Air Business Ltd, c/o Worldnet Shipping Inc., 156-15, 149th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Subscription records are maintained at Nature Publishing Group, Brunel Road, Basingstoke, Hampshire RG21 6XT, UK. Air Business Ltd is acting as our mailing agent.

Links to further information

The full text of articles includes author biographies, links to glossary terms and links to websites and databases with relevant information.

Key points provides a bullet-pointed summary of the main topics covered in each article.

E-alert table of contents

Get monthly e-mail alerts to the content of this journal — sent FREE to your inbox — by registering online. Or sign up to receive the latest content as an RSS newsfeed by visiting www.nature.com/reviews/immunol

Twitter

Follow *Nature Reviews Immunology* on Twitter for the latest news from the journal and beyond: @NatRevImmuno

Online correspondence

Comments from readers about our articles. All correspondence will be highlighted on the table of contents and on e-mail alerts.

RESEARCH HIGHLIGHTS

- 391 INFECTION Resistance is futile
- 392 MUCOSAL IMMUNOLOGY TLRs get rhythm
LYMPHOCYTE RESPONSES Stand by for action!
INFECTION The interferon paradox
- 393 IN BRIEF Mast cells | Technique | Macrophages
- 394 TOLERANCE The origins of colonic T_{Reg} cells
NATURAL KILLER CELLS Adaptive control of NK cells
- 395 TYPE 2 IMMUNITY Regenerating muscles the type 2 way

PERSPECTIVES

TIMELINE

- 453 **The history of Toll-like receptors — redefining innate immunity**

Luke A. J. O'Neill, Douglas Golenbock and Andrew G. Bowie

The past 15 years have seen a breakthrough in the field of innate immunity. In this Timeline article, the authors discuss the early events that led to the identification of Toll-like receptors as the prototype pattern-recognition receptors that link innate and adaptive immune responses.

VIEWPOINT

- 461 **The plasticity and stability of regulatory T cells**

Shimon Sakaguchi, Dario A. A. Vignali, Rachel E. Niec and Alexander Y. Rudensky, and Herman Waldmann

In this Viewpoint article, several experts share their thoughts on the plasticity and stability of regulatory T cells, discussing the recent advances in our understanding of the transcriptional and epigenetic regulation of this important T cell subset, as well as the therapeutic implications of this research.



EDITORIAL OFFICE

LONDON: NatureReviews@nature.com
The Macmillan Building, 4 Crinan Street,
London N1 9XW, UK
Tel: +44 (0)20 7843 3620;
Fax: +44 (0)20 7843 3629
To subscribe and for more detailed information visit
www.nature.com/reviews/immunol

CHIEF EDITOR: Lucy Bird
ACTING CHIEF EDITOR: Olive Leavy
SENIOR EDITORS: Kirsty Minton, Yvonne Bordon
ASSOCIATE EDITOR: Maria Papatriantafyllou
COPY EDITOR: Kate Gowers
SENIOR COPY EDITORS: Mariam Faruqi,
Matthew Smyllie, Isabel Woodman,
Lucie Wootton
COPY EDITING MANAGER: Catriona Rodwell
ART EDITOR: Simon Bradbrook
SENIOR ART EDITORS: Vicky Summersby,
Patrick Morgan, Kirsten Lee
ART CONTROLLER: Susanne Harris

MANAGING PRODUCTION EDITOR: Judith Shadwell
SENIOR PRODUCTION EDITOR: Simon Fenwick
PRODUCTION CONTROLLER: Natalie Smith
OFFICE MANAGER: Laura Lee
MANAGING EDITOR: Suzanne Farley
SENIOR EDITORIAL ASSISTANTS: Laura Corns,
Ella Lines
WEB PRODUCTION MANAGER: Dipti Shah
MARKETING MANAGERS: Tim Redding,
Virginia Lee
PUBLISHER: Alison Mitchell
CUSTOMER SERVICES: Feedback@nature.com

Copyright © 2013 Nature Publishing Group
Printed in Wales by Cambrian Printers
on acid-free paper.

EDITORS



LUCY BIRD



OLIVE LEAVY



KIRSTY MINTON



YVONNE BORDON



MARIA PAPATRIANTAFYLLOU