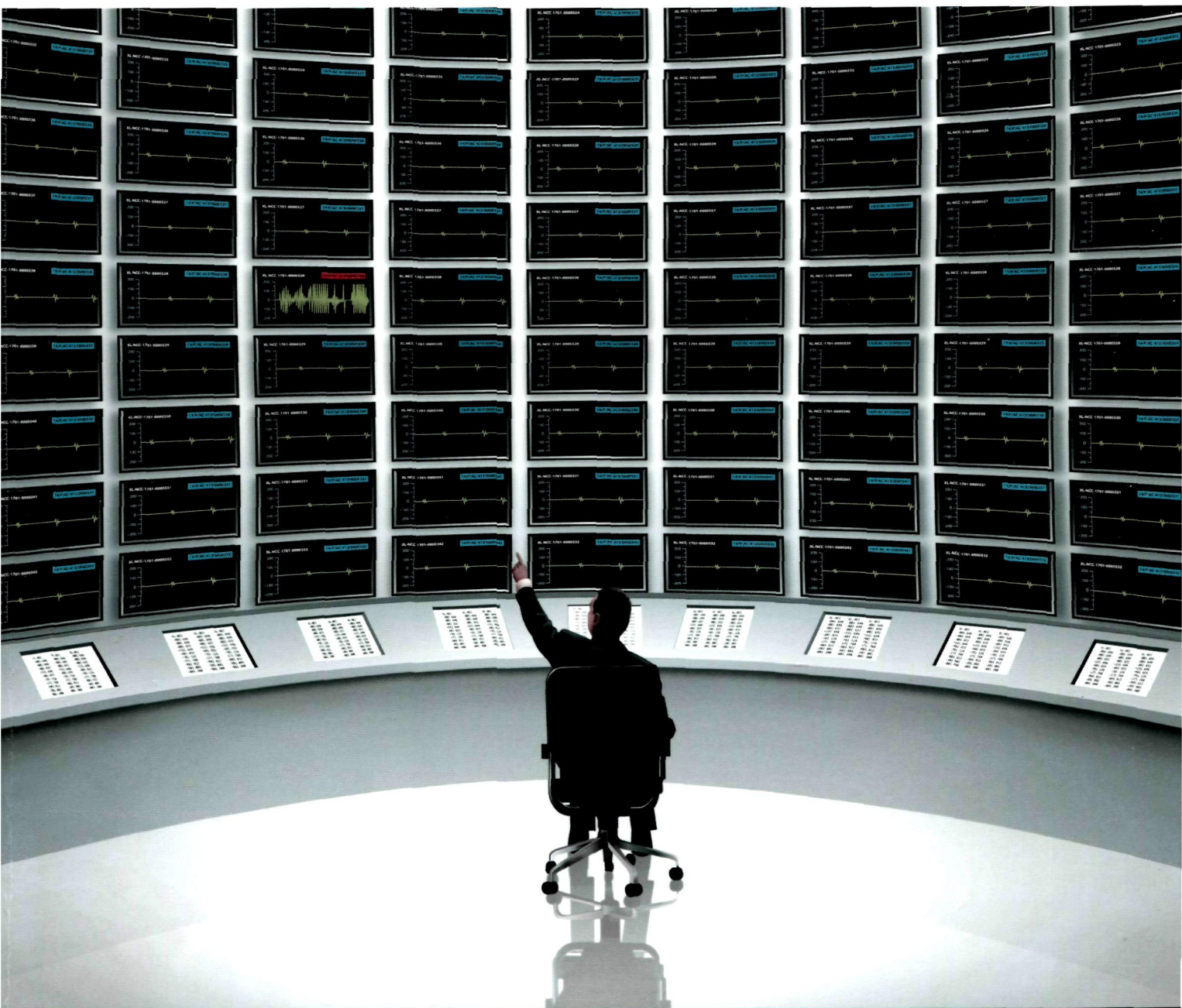


Nature REVIEWS

october 2013 volume 13 no. 10

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IMMUNOLOGY



CH-CH-CH-CHANGES

Is discontinuity the key driver of immune responses?

Monitoring immunity

Using MRI methods to visualize immune cell behaviour

REVIEWS

709 Macrophages in atherosclerosis: a dynamic balance

Kathryn J. Moore, Frederick J. Sheedy and Edward A. Fisher

In this Review, the authors provide a comprehensive overview of the role of macrophage dynamics in determining the initiation, progression and regression of atherosclerotic inflammation. Understanding the factors that determine the inflammatory state of the plaque may help to identify potential therapeutic targets for plaque regression.

722 Autophagy in infection, inflammation and immunity

FEATURED
ARTICLE

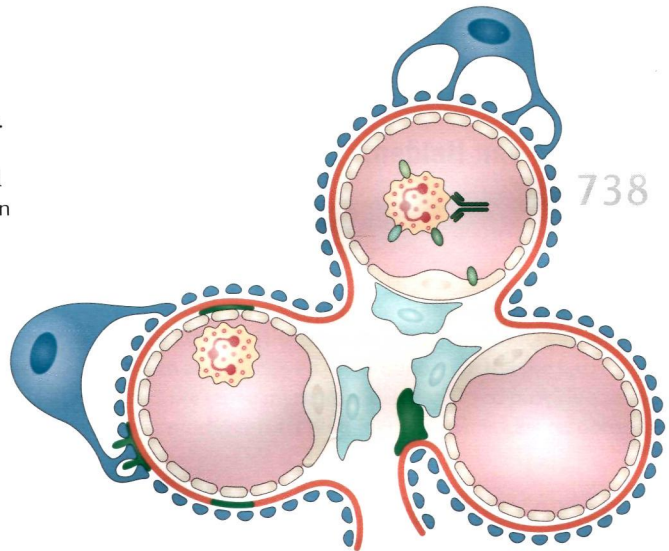
Vojo Deretic, Tatsuya Saitoh and Shizuo Akira

It is increasingly understood that autophagy is an ancient defence mechanism that has become incorporated into numerous immunological pathways. As discussed in this Review, its immunological roles include the elimination of microorganisms, the control of inflammation, the regulation of antigen presentation and lymphocyte homeostasis, and the secretion of immune mediators.

738 The immune system and kidney disease: basic concepts and clinical implications

Christian Kurts, Ulf Panzer, Hans-Joachim Anders and Andrew J. Rees

Chronic kidney disease affects approximately 10% of the Western population. Recent studies have elucidated some of the immune mechanisms that contribute to kidney injury and disease, which are described in this Review. In addition, the contribution of the kidneys to immune homeostasis and the effects of kidney failure on systemic immune functions are discussed.



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

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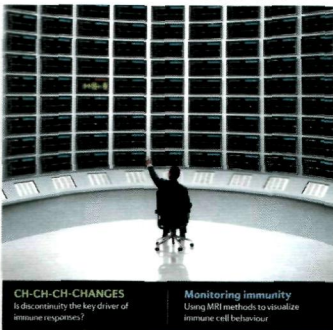
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CH-CH-CH-CHANGES
Is discontinuity the key driver of
immune responses?

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immune cell behaviour

► COVER: 'Monitoring discontinuities' by
Simon Bradbrook, inspired by the Review on p764.

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- 704 PATTERN RECOGNITION RECEPTORS DNA damage drives detection
- ASTHMA AND ALLERGY A fibrinogen root to airway inflammation
- 705 MUCOSAL IMMUNOLOGY Air miles for T cells
- 706 IN BRIEF Signalling | Reproductive immunology | Immune regulation
- NEUROIMMUNOLOGY Pain — blame it on the bug, eh?
- MACROPHAGES Metabolic master prompts a change of tack
- 707 B CELL DEVELOPMENT A window of opportunity

PERSPECTIVES

INNOVATION

- 755 Tracking immune cells *in vivo* using magnetic resonance imaging

Eric T. Ahrens and Jeff W. M. Bulte

This Innovation article describes the development of magnetic resonance imaging (MRI) methods for image-guided immune cell delivery and for the visualization of immune cell homing and engraftment, inflammation, cell physiology and gene expression.

ESSAY

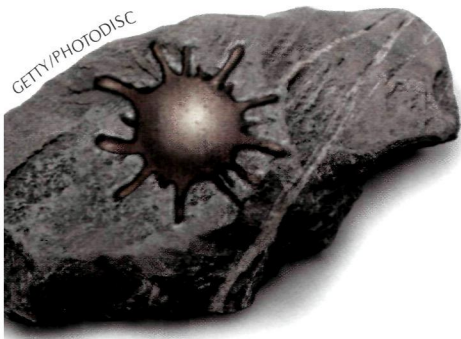
- 764 The speed of change: towards a discontinuity theory of immunity?

Thomas Pradeu, Sébastien Jaeger and Eric Vivier

Here, the authors present a new theoretical framework — the discontinuity theory — to account for how the immune system generates an appropriate immune response to any perceived disturbance. On the the basis of this theory, the authors present a mathematical model and provide examples to explain how this model can account for diverse immune responses.

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Tel: +44 (0)20 7843 3620; Email: NatureReviews@nature.com
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OLIVE LEAVY



LUCY BIRD



KIRSTY MINTON



YVONNE BORDON