

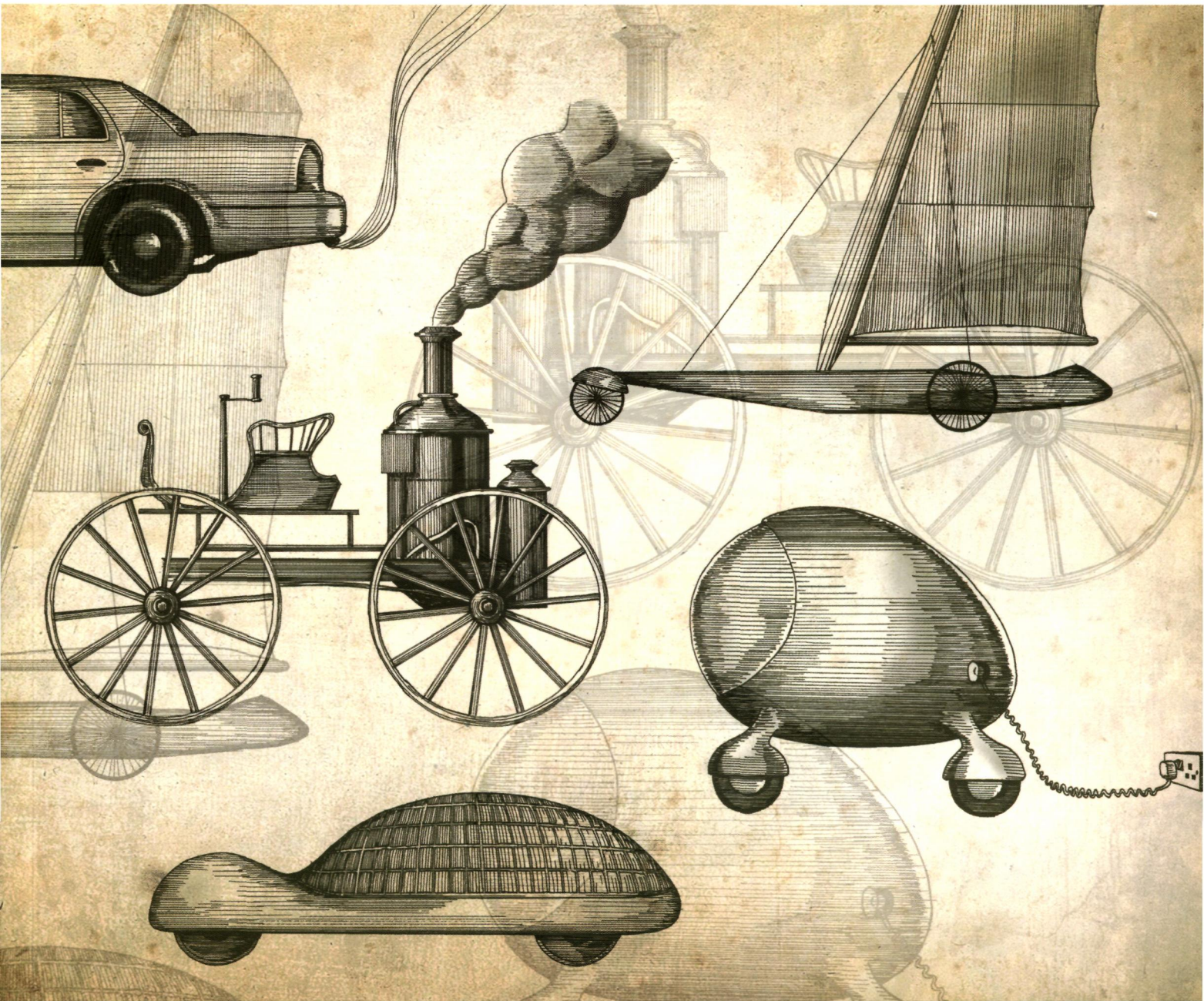
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Nature

REVIEWS

july 2014 volume 14 no. 7
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IMMUNOLOGY



POWERING UP T CELLS

Integrating metabolic and classical
T cell signalling pathways

An industrial revolution

How new technologies have
advanced the vaccines field



Out of bounds — ectopic lymphoid tissues p447

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July 2014

volume 14 no. 7

REVIEWS

435 Integrating canonical and metabolic signalling programmes in the regulation of T cell responses

Kristen N. Pollizzi and Jonathan D. Powell

T cell subsets have unique metabolic needs. In this Review, the authors explain how metabolic pathways are interconnected with signalling pathways that mediate the activation and differentiation of discrete T cell subsets. They suggest that a better understanding of this complexity will lead to more targeted therapies for immune regulation.

447 Ectopic lymphoid-like structures in infection, cancer and autoimmunity

FEATURED ARTICLE

Costantino Pitzalis, Gareth W. Jones, Michele Bombardieri and Simon A. Jones

Inflammation can promote the development of lymphoid structures in tissue sites at which they do not normally occur. Here, the authors discuss how these ectopic lymphoid-like structures arise and, furthermore, how they affect immune responses in the setting of infection and disease.

463 Innate immune activation in neurodegenerative disease

Michael T. Heneka, Markus P. Kummer and Eicke Latz

In this Review, the authors discuss how innate immune mechanisms can contribute to the development of neurodegenerative disease. They suggest that both local and systemic inflammation can drive pathological microglial cell activity, thereby leading to neuronal cell dysfunction and disease.

478 Mast cell secretory granules: armed for battle

Sara Wernersson and Gunnar Pejler

Mast cell granules contain numerous immunomodulatory compounds that are rapidly released in various inflammatory settings. Here, the authors describe the composition, biogenesis and maturation of mast cell granules, and they focus on the biological effects of the mast cell proteases that are released.

495 Follicular dendritic cells: dynamic antigen libraries

Balthasar A. Heesters, Riley C. Myers and Michael C. Carroll

Follicular dendritic cells (FDCs) in lymph nodes support the development of high-affinity antibody responses by retaining antigens at their cell surface for long periods of time. Although FDCs are generally regarded as 'accessory cells' in the germinal centre, recent data suggest that they have more active roles in the development of humoral immune responses. This Review focuses on our current understanding of FDCs.

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

Advance online publication

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Forthcoming articles:

Developmental gene networks: a triathlon on the course to T cell identity
Mary A. Yui and Ellen V. Rothenberg

Assembly and localization of Toll-like receptor signalling complexes
Nicholas J. Gay, Martyn F. Symmons, Monique Gangloff and Clare E. Bryant

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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.

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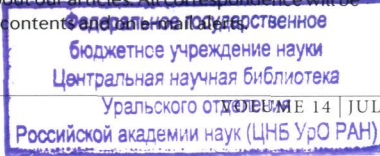
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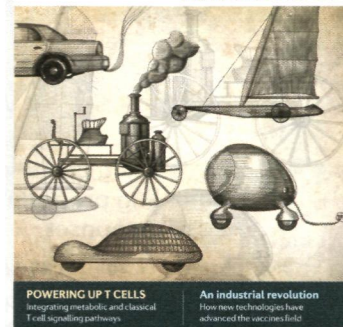
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REVIEWS

IMMUNOLOGY



POWERING UP T CELLS
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How new technologies have advanced the vaccines field

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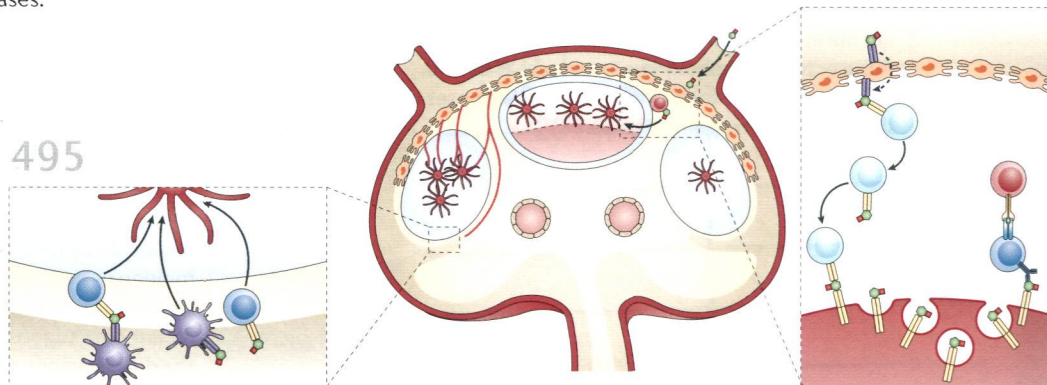
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- 505 **From empiricism to rational design: a personal perspective of the evolution of vaccine development**

Ennio De Gregorio and Rino Rappuoli

The technological revolution in vaccination — from the empirical approach pioneered by Jenner and Pasteur to the recent developments in structural and reverse vaccinology, combined with synthetic biology — promises great hope for the development of safer and more effective vaccines against all infectious diseases.



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