



nature publishing group



► **COVER:** 'Reflections on mucosal immunology', by Simon Bradbrook. Original image courtesy of David Artis (dartis@vet.upenn.edu).



ELAINE BELL



LUCY BIRD



KIRSTY MINTON



OLIVE LEAVY



SARAH ALLAN

**W**atch out gastroenterologists! Many immunologists are now turning their attention to the study of immune responses at mucosal sites. Mucosal immunology is attractive for several reasons. Mucosal surfaces comprise the body's first line of defence against numerous pathogenic organisms. And understanding how the mucosal immune system is typically able to distinguish pathogens from the commensal microflora and innocuous food antigens and respond appropriately to each challenge is a fascinating conundrum. When the mucosal immune system fails to discriminate between good and bad, the consequences — such as inflammatory bowel disease and food allergy — can be devastating. Exciting research is now providing clues to the inner workings of the mucosal immune system, and the harnessing of its unusual features to prevent or treat disease shows promise for the development of new mucosal vaccines, adjuvants and immunotherapeutics.

Five articles in this issue review the latest developments in the field of mucosal immunology. David Artis assigns renewed importance to the functions of intestinal epithelial cells. Janine Coombes and Fiona Powrie dissect the role of dendritic cells in intestinal immune regulation. Andrea Cerutti details the regulation of IgA, the body's most abundant antibody class. Judy Cho draws on lessons learnt from genome studies to understand inflammatory bowel diseases, and Florian Hladik and Juliana McElrath cover the invasion of genital mucosal sites by HIV.

The importance of this fast-growing field is also illustrated by the recent partnership between the Society for Mucosal Immunology and the Nature Publishing Group in the production of the new journal *Mucosal Immunology*. Finally, we thank the Federation of Clinical Immunology Societies (FOCIS) and Beckman Coulter for supporting this Focus issue.

**EDITORIAL OFFICES**

**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

**CHIEF EDITOR:** Elaine Bell  
**ACTING CHIEF EDITOR:** Lucy Bird  
**SENIOR EDITORS:** Kirsty Minton, Olive Leavy  
**ASSOCIATE EDITOR:** Sarah Allan

**COPY EDITOR:** Marta Tufet  
**ART EDITOR:** Simon Bradbrook  
**EDITORIAL SUPPORT MANAGER:**  
Elinor Faulkner

**ART CONTROLLER:** Susanne Harris  
**SENIOR ART EDITORS:** Vicky Askew,  
Patrick Morgan

**MANAGING PRODUCTION EDITOR:**  
Judith Shadwell  
**DEPUTY PRODUCTION EDITOR:**  
Simon Fenwick

**PRODUCTION CONTROLLER:** Natalie Smith

**EDITORIAL ASSISTANTS:** Laura Firman,  
Jacques Smit

**WEB PRODUCTION MANAGER, UK:**  
Alexander Thurrell

**MARKETING MANAGERS:** Tim Redding,  
Leah Rodriguez

**MANAGEMENT OFFICES**

**LONDON** nature@nature.com  
The Macmillan Building,  
4 Crinan Street,  
London N1 9XW, UK  
Tel: +44 (0)20 7833 4000;  
Fax: +44 (0)20 7843 4596/7

**OFFICE MANAGER:** Sheryl Ocampo  
**ASSOCIATE PUBLISHER:** Magdalena Skipper  
**MANAGING DIRECTOR:** Steven Inchcombe  
**EDITOR-IN-CHIEF, NATURE PUBLICATIONS:**  
Philip Campbell

**ASSOCIATE DIRECTORS:**  
Jenny Henderson, Tony Rudland

**EDITORIAL PRODUCTION DIRECTOR:**  
James McQuat

**PRODUCTION DIRECTOR:**

Yvonne Strong

**DIRECTOR, WEB PUBLISHING:**  
Timo Hannay

**HEAD OF WEB PRODUCTION:**  
Jeremy Macdonald

**NEW YORK** nature@natureny.com  
Nature Publishing Group,  
75 Varick Street,  
9th floor, New York,  
NY 10013-1917, USA  
Tel: +1 212 726 9200;  
Fax: +1 212 696 9006

**CHIEF TECHNOLOGY OFFICER:**  
Howard Ratner

**DIRECTOR OF NEW TECHNOLOGY:**  
Greg Suprock

**HEAD OF WEB SERVICES:**  
Anthony Barrera

**NATUREJOBS PUBLISHER:** Ben Crowe

**HEAD OF NATURE RESEARCH & REVIEWS  
MARKETING:** Sara Girard

**TOKYO** nature@natureasia.com

Chiyoda Building 5F, 2-37-1 Ichigayatamachi,  
Shinjuku-ku, Tokyo 162-0843, Japan  
Tel: +81 3 3267 8751; Fax: +81 3 3267 8746

**ASIA-PACIFIC PUBLISHER:** Antoine E Bocquet  
**MANAGER:** Koichi Nakamura

**ASIA-PACIFIC SALES DIRECTOR:**  
Kate Yoneyama

**SENIOR MARKETING MANAGER:**  
Peter Yoshihara

**MARKETING/PRODUCTION MANAGER:**  
Takesh Murakami

**INDIA** 5A/12 Ansari Road, Daryaganj,  
New Delhi 110 002, India  
Tel/Fax: +91 11 2324 4186

**SALES AND MARKETING MANAGER, INDIA:**  
Harpal Singh Gill

Copyright © 2008 Nature Publishing Group  
Research Highlight images courtesy of  
Getty Images unless otherwise credited.  
Printed in Wales by Cambrian Printers  
on acid-free paper