



nature publishing group



► **COVER:** 'And they're off' by Simon Bradbrook, inspired by the Review on innate cell sources of IL-17 on p479.



LUCY BIRD



KIRSTY MINTON



OLIVE LEAVY



YVONNE BORDON

**F**or goalkeepers playing in this month's World Cup, quick reactions are essential for stopping that ball from reaching the back of the net. Similarly, a rapid response by the innate immune system is crucial for protecting the body against incoming threats. To do so, the innate immune system has evolved a range of receptors and effector mechanisms that detect and respond quickly to tissue injury, cell stress or pathogens. One response — the production of interleukin-17 (IL-17) — has received much attention recently but mainly in terms of mature T cells. On page 479, Daniel Cua and Cristina Tato point out that many innate immune cell populations rapidly produce IL-17 on sensing stress, before T cells have had a chance to mature and gain this activity. This early production of IL-17 is thought to be crucial for protecting against pathogens and maintaining normal homeostasis of the body's tissues, particularly those that are exposed to the environment.

One of the main cell populations responsible for this quick-fire production of IL-17 is the  $\gamma\delta$  T cell population.  $\gamma\delta$  T cells are a unique T cell subset defined by their ability to recognize stress-induced molecules through the  $\gamma\delta$  T cell receptor and respond with innate cell-like kinetics. On page 467, Marc Bonneville and colleagues describe how the rapid effector functions of  $\gamma\delta$  T cells are programmed during their development but can also be gained later according to the type of threat they face. This enables  $\gamma\delta$  T cells, by teaming up with 'players' of the innate and adaptive immune systems, to help establish appropriate responses to cell stress or pathogens. Agnès Lehuen and coauthors (page 501) explore such immune cell interplay further in the context of type 1 diabetes, describing how pathogens can influence these cellular interactions and therefore the onset of the disease.

**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:** Lucy Bird**SENIOR EDITORS:** Kirsty Minton, Olive Leavy**ASSOCIATE EDITOR:** Yvonne Bordon**COPY EDITOR:** Gemma Ryan**SENIOR COPY EDITOR:** Man Tsuey Tse**ART EDITOR:** Simon Bradbrook**ART CONTROLLER:** Susanne Harris**SENIOR ART EDITORS:** Vicky Summersby,

Patrick Morgan

**MANAGING PRODUCTION EDITOR:**

Judith Shadwell

**SENIOR PRODUCTION EDITOR:**

Simon Fenwick

**PRODUCTION CONTROLLER:**

Natalie Smith

**EDITORIAL ASSISTANTS:** Jacques Smit,

Laura Corns

**WEB PRODUCTION MANAGER:**

Deborah Anthony

**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:** Laura Firman**PUBLISHER:** Stephanie Diment**MANAGING DIRECTOR:**

Steven Inchcoombe

**EDITOR-IN-CHIEF, NATURE PUBLICATIONS:**

Philip Campbell

**ASSOCIATE DIRECTORS:** Jenny Henderson,

Dominic Pettit

**EDITORIAL PRODUCTION DIRECTOR:**

James McQuat

**PRODUCTION DIRECTOR:**

Yvonne Strong

**DIRECTOR, WEB PUBLISHING:**

Dan Pollock

**HEAD OF WEB PRODUCTION:**

Alexander Thurrell

**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

**HEAD OF INTERNAL SYSTEMS DEVELOPMENT:**

Anthony Barrera

**HEAD OF SOFTWARE SERVICES:**

Luigi Squillante

**GLOBAL HEAD OF ADVERTISING AND****SPONSORSHIP:** Dean Sanderson**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** SA/12 Ansari Road, Daryaganj,

New Delhi 110 002, India

Tel/Fax: +91 11 2324 4186

**SALES AND MARKETING MANAGER, INDIA:**

Harpal Singh Gill

Copyright © 2010 Nature Publishing Group

Research Highlight images courtesy of

Getty Images unless otherwise credited.

Printed in Wales by Cambrian Printers

on acid-free paper