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► **COVER:** 'The view from within' by Ann Haberman (ann.haberman@yale.edu), inspired by the Progress article on imaging germinal centres on p499.



ELAINE BELL



KIRSTY MINTON



LUCY BIRD



OLIVE LEAVY



SHARON AHMAD

**T**echnical advances continually drive our ability to answer key questions on how the immune system functions. In this month's issue, some of these advances are highlighted and the insights that we have gained from them are discussed.

One of the hallmarks of adaptive immunity is the production of high-affinity antibodies. The selection of B cells that produce these antibodies occurs in germinal centres, but questions surrounding the mechanisms involved in this process have been difficult to address owing to technical and analytical constraints. However, recent advances in imaging have allowed researchers to directly visualize cellular interactions and movement within the germinal centres of living animals. In the Progress article on page 499, Anja Hauser, Mark Shlomchik and Ann Haberman discuss three recent studies of outstanding interest that shed light on germinal-centre development and the dynamics of B-cell selection during affinity maturation.

The field of xenotransplantation has also experienced recent technical advances. The shortage of human organ donors has led to the consideration of alternative sources of organs, tissues and cells for transplantation to address the supply–demand imbalance. Yong-Guang Yang and Megan Sykes (page 519) discuss obstacles hindering xenotransplantation in the clinic and their potential solutions, and examine the future of xenotransplantation.

The availability of new high-throughput technologies and of the complete sequence of the human genome are allowing researchers to carry out genome-wide analysis of common diseases, including Crohn's disease, diabetes and rheumatoid arthritis, and to identify genetic variations associated with disease susceptibility (In the news, page 493). This information will fuel future immunological research and may provide the key to our understanding of these disorders.

#### EDITORIAL OFFICES

**LONDON** NatureReviews@nature.com  
The Macmillan Building, 4 Crinan Street,  
London N1 9XW, UK  
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The Macmillan Building,  
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London N1 9XW, UK  
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Fax: +44 (0)20 7843 4596/7  
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**NEW YORK** nature@nature.com  
Nature Publishing Group,  
75 Varick Street,  
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nature@natureasia.com  
Chiyoda Building 5F, 2-37-1 Ichigayatamachi,  
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Tel: +81 3 3267 8751; Fax: +81 3 3267 8746  
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