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► **COVER:** 'The master key' by Neil Smith, inspired by the Perspective on p737.



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OLIVE LEAVY



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The robustness of the vertebrate immune system is due in no small part to its diversity. Protection against infection comes from interactions among our enormously diverse lymphocyte repertoires and many different cytokines, chemokines and antigen-presenting cells, resulting in both cellular and humoral immune responses. The price for such diversity, however, is self reactivity, so our immune systems must also battle to avoid unwanted autoimmune responses. This month we celebrate this diversity by touching on a number of these components in an issue that is sure to have something for everyone.

James Di Santo and colleagues tackle the subject of diversity on page 703 as they examine the evidence for natural killer (NK)-cell subsets with specialized functions in humans and mice. NK cells express activating receptors, including NKG2D (NK group 2, member D), which recognizes numerous stress-inducible host proteins. In their Opinion article on page 737, Robert Eagle and John Trowsdale discuss why there are so many ligands for this one receptor.

A very different type of receptor is the neonatal Fc receptor for IgG (FcRn), best known for its role in postnatal humoral immunity. But new roles for FcRn are beginning to emerge and are summarized in a Review by Derry Roopenian and Shreeram Akilesh (page 715).

Rounding out our diverse issue this month, we examine lymphocyte activation in terms of calcium signalling (page 690) and sonic hedgehog signalling (page 726), and update our knowledge of the leukocyte adhesion cascade (page 678). Finally, on page 665 we learn about recent research that uses various strategies aimed at inducing antigen-specific self-tolerance for the potential treatment of human autoimmune diseases.

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