Sci. Signal., 7 February 2012
Vol. **5**, Issue 210, p. ec41
[DOI: 10.1126/scisignal.2002923]

EDITORS' CHOICE

Immunology

Immune Sentinels

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A classic paradigm in immunology holds that the immune response occurs in two waves: Rapidly responding cells of the innate immune system help to contain the invading pathogen and alert lymphocytes. These cells of the adaptive immune system then help to clear the infection and go on to form long-lasting memory. However, some specialized populations of lymphocytes can also respond quickly to an infection and carry out functions that overlap with the innate immune system. Now, Rauch *et al.* describe one such cell type—innate response activator (IRA) B cells. IRA B cells recognize bacterial liposaccharide through Toll-like receptor 4 and, in response, produce the cytokine GM-CSF (granulocyte-macrophage colony-stimulating factor), which activates other innate immune cells. Deletion of IRA B cells in mice impaired their ability to clear a bacterial infection and promoted septic shock.

P. J. Rauch, A. Chudnovskiy, C. S. Robbins, G. F. Weber, M. Etzrodt, I. Hilgendorf, E. Tiglao, J.-L. Figueiredo, Y. Iwamoto, I. Theurl, R. Gorbatov, M. T. Waring, A. T. Chicoine, M. Mouded, M. J. Pittet, M. Nahrendorf, R. Weissleder, F. K. Swirski, Innate response activator B cells protect against microbial sepsis. *Science* **335**, 597–601 (2012). [Abstract] [Full Text]

Citation: K. L. Mueller, Immune Sentinels. *Sci. Signal.* **5**, ec41 (2012).

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Science Signaling. ISSN 1937-9145 (online), 1945-0877 (print). Pre-2008: *Science*'s STKE. ISSN 1525-8882