

New bug-fighter cell may force immune response rethink

22 January 2012

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THE body's response to bacterial infection may rely on a newly discovered type of immune cell.

Innate response activator B-cells (IRA-B) release a chemical that rallies neutrophils, immune cells that start attacking and engulfing bacterial invaders.

While neutrophils are at the vanguard of immune defence, the primary role of [B-cells](#) was thought to be in organising the later "adaptive" immune response. This involves producing antibodies tailored to fight specific pathogens, enabling the body to defeat them if they invade again.

"Our findings challenge us to revisit this hierarchy," says [Filip Swirski](#) of the Center for Systems Biology in Boston, who led the research. "This is a cell that plays a key role in the initiation of an immune response, not just in the production of antibodies."

Swirski and his colleagues discovered the cells when they were looking for the source of a growth factor called GM-CSF that activates other types of immune cell, including neutrophils and macrophages.

They injected mice with a bacterial product to trigger an immune response. When they used a fluorescent antibody that binds to GM-CSF, they spotted its source - the unusual IRA-B cells, which are produced in the spleen.

The cells also seem to guard against [sepsis](#), a life-threatening immune reaction to infection. Mice engineered to lack functional IRA-B cells were unable to clear bacteria, and died from sepsis (*Science*, DOI: [10.1126/science.1215173](#)).

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