

# Disease-fighting antibody production

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The influence of environmental cues on the differentiation and function of B cells—white blood cells that produce antibodies as part of humoral immunity—is incompletely understood.

Mark Boothby, MD, Ph.D., and colleagues have explored the role of mTORC1, a sensor of nutrient supply, in B cell function. They report in the April 15 issue of the *Journal of Immunology* that disruption of mTORC1 after B cell development and activation in mice led to reduced populations of antigen-specific memory B cells and antibody-producing plasma cells.

They found that mTORC1 was required for the genetic changes that produce high affinity antibodies in germinal centers—the sites within [lymph nodes](#) and the spleen where the processes of antibody gene rearrangement and mutation occur. Disruption of mTORC1 impacted an antiviral antibody response and impaired generation of high affinity antibodies of the IgG1 type.

The studies establish that the nutrient sensor mTORC1 is critical to the quality of the antibody-mediated immune response.

**More information:** Ariel L. Raybuck et al. B Cell–Intrinsic mTORC1 Promotes Germinal Center–Defining Transcription Factor Gene Expression, Somatic Hypermutation, and Memory B Cell Generation in Humoral Immunity, *The Journal of Immunology* (2018). [DOI: 10.4049/jimmunol.1701321](#)

Provided by Vanderbilt University

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