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B and T cell-targeting drug ameliorates chronic graft-versus-host disease in mice

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Hematopoietic stem cells (HSCs) can differentiate into all types of blood cells, including red blood cells and immune cells. While HSC transplantation can be life saving for patients with aggressive forms of blood cancer that are unresponsive to other available treatments, there are many risks associated with the procedure. For example, graft verse host disease (GVHD) results when immune cells generated from donor HSCs attack host tissue. Chronic GVHD occurs over time and is characterized by fibrosis, which impairs organ function.

A new study in the *Journal of Clinical Investigation* demonstrates that targeting T and B cells has potential to ameliorate chronic GVDH. Bruce Blazar and colleagues at the University of Minnesota evaluated the FDA-approved drug ibrutinib in mouse models of chronic GVHD. Ibrutinib blocks both B cell activation and inhibits specific populations of T cells with limited toxicity.

In mouse models, ibrutinib reduced chronic GVHD. Importantly, ibrutinib treatment reduced activation of T and B cells isolated from patients with chronic GVHD. The results of this study indicate that active T and B cells drive chronic GVHD and suggest that ibrutinib should be further explored for human GVHD.

More information: Ibrutinib treatment ameliorates murine chronic graft-versus-host disease, *J Clin Invest*. DOI: 10.1172/JCI75328