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NCI First International Workshop on The Biology, Prevention, and Treatment of Relapse After Allogeneic Hematopoietic Stem Cell Transplantation: Report from the Committee on the Biology Underlying Recurrence of Malignant Disease following Allogeneic HSCT: Graft-versus-Tumor/Leukemia Reaction.

[Miller JS](#), [Warren EH](#), [van den Brink MR](#), [Ritz J](#), [Shlomchik WD](#), [Murphy WJ](#), [Barrett AJ](#), [Kolb HJ](#), [Giralt S](#), [Bishop MR](#), [Blazar BR](#), [Falkenburg JH](#).

Source

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Abstract

The success of allogeneic hematopoietic stem cell transplantation (HSCT) depends on the infusion of benign stem cells as well as lymphocytes capable of participating in a graft-versus-tumor/leukemia (GVL) reaction. Clinical proof of concept is derived from studies showing increased relapse after the infusion of lymphocyte depleted hematopoietic grafts as well as the therapeutic efficacy of donor lymphocyte infusions without chemotherapy to treat relapse in some diseases. Despite this knowledge, relapse after allogeneic HSCT is common with rates approaching 40% in those with high-risk disease. In this review, we cover the basic biology and potential application to exploit adaptive T cell responses, minor histocompatibility antigens, contraction and suppression mechanisms that hinder immune responses, adaptive B cell responses and innate NK cell responses, all orchestrated in a GVL reaction. Optimal strategies to precisely balance immune responses to favor GVL without harmful graft-versus-host disease (GVHD) are needed to protect against relapse, treat persistent disease and improve disease-free survival after HSCT.

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