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## Checkpoint blockade in hematology and stem cell transplantation

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Blockade of the immune checkpoints has recently emerged as a paradigm shift in the treatment of solid tumors. Several programmed cell death protein 1 (PD-1) and cytotoxic T-lymphocyte associated protein 4 (CTLA-4) inhibitors are now approved and are moving to first line therapy in several solid tumors. Other checkpoint blocking agents are in earlier phases of development. These inhibitors have also been investigated in the treatment of hematological malignancies, with significant and durable response rates in Hodgkin Lymphoma. PD-1 inhibitors are also active in non-Hodgkin lymphoma but responses are lower than what is observed in Hodgkin lymphoma. Therefore, several strategies are being employed to enhance the activity of checkpoint blocking agents, such as combination with monoclonal antibodies, other immune modulatory agents or stem cell transplantation. Here, we will review the activity and safety of checkpoint blockade in lymphoma and leukemia and strategies used to enhance their activity. Then, we'll discuss how we see these therapies being applied in the context of bone marrow transplantation and adoptive T cell therapy.

### Biography

Saad S Kenderian, MD, is a Senior Associate Consultant in the Division of Hematology and Bone Marrow Transplantation at the Mayo Clinic. He holds the academic rank of Assistant Professor of Medicine and Oncology, Mayo Clinic College of Medicine. After completing a combined Fellowship in Hematology and Medical Oncology, he joined the Division of Hematology at Mayo, received the Mayo Scholar Award and joined the Translational Research Program of the University of Pennsylvania as a Mayo Scholar, where he worked in T cell immunotherapy for over two years. He returned to the Mayo Clinic in early 2016. He has received internal and external funding for his work in immunotherapy. He has been honored with numerous awards during his training and career. He is a Member of the American Society of Hematology, American Society for Blood and Marrow Transplantation, American Association for Cancer Research. He has authored or co-authored more than 25 articles in peer-reviewed journals and holds several patents in the field of engineered T cell therapy.

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