

JAK INHIBITOR AS CONDITIONING AGENT FOR ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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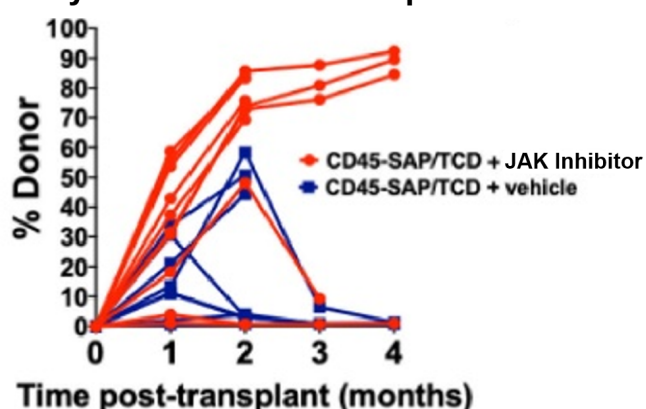
Technology Description

Researchers at Washington University in St. Louis have developed an improved process for conditioning patients for allogeneic hematopoietic stem cell transplantation (alloHSCT) using JAK inhibitors. Commonly used to treat autoimmune diseases like rheumatoid arthritis, JAK inhibitors are less toxic than chemotherapy or radiation as conditioning agents but still show efficacy in preventing graft rejection.

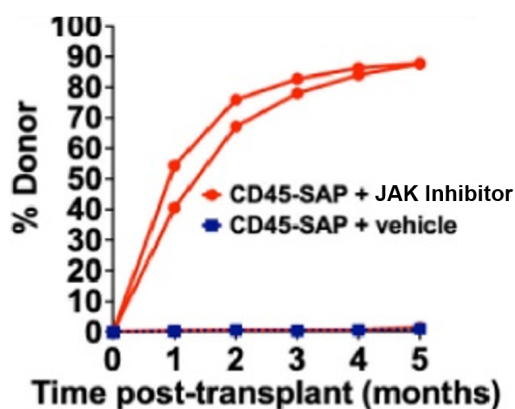
AlloHSCT is an effective treatment option for several diseases including acute myeloid leukemia, although patients often have difficulty tolerating the aggressive chemotherapy- or radiation-based conditioning regimens. This has led to the emergence of reduced-intensity conditioning for alloHSCT, which sacrifices some efficacy for increased tolerability in particularly vulnerable patient groups. Adding a JAK inhibitor to the conditioning protocol could reduce or eliminate the need for more aggressive agents, providing higher efficacy with lower toxicity.

Stage of Research

Daily Inhibitor + T Cell Depletion



Continuous Inhibitor



The inventors

demonstrated the effectiveness of adding a JAK inhibitor to the conditioning regimen for F1-to-parent hematopoietic stem cell transplant in WT mice in their initial proof-of-concept experiments. Adding the JAK inhibitor baricitinib better conditioned mice for donor cell engraftment than anti-CD45 therapy alone, with or without T cell depletion before transplantation (see above).

Publications

- Persaud SP, Cooper ML, Ritchey JK, Rettig MP, DiPersio JF. (2020). [Antibody-drug conjugates targeting CD45 plus Janus kinase \(JAK\) inhibitors as conditioning for allogeneic hematopoietic stem cell transplantation](#). *Biology of Blood and Marrow Transplantation*, 26(3):S150-S151.

Applications

- Conditioning regimen prior to allogeneic hematopoietic stem cell transplant
 - Alone or in combination with other conditioning agents

Key Advantages

- Reduced potential for graft rejection
- Less toxicity than chemotherapy or radiation

Patents: Pending

Related Web Links: DiPersio [Profile](#) & [Lab](#)