

## Research shows a promising new method to reduce graft-versus-host-disease after bone marrow transplantation

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(PhysOrg.com) -- University of Michigan researchers have discovered a new method to prevent the immune-system attacks that often occur following bone marrow transplants.

Bone marrow transplantation can cure patients with leukemia and other cancers even when the disease is resistant to other treatments. The success of this procedure relies on killing cancer cells by using <u>immune</u> <u>cells</u> from a bone marrow donor while avoiding an <u>immune attack</u> against the patient's organs, which causes a dangerous complication called graft-versus-host disease.

Dr. Ivan Maillard, a U-M Life Sciences Institute professor and an assistant professor of internal medicine at the Medical School, and his lab discovered the new method and say they're encouraged by preliminary results in mouse models. The work, done in collaboration with a team at the U-M Comprehensive Cancer Center, was recently reported in the journal *Blood*.

The new method works by inhibiting the Notch signaling pathway in immune cells called donor <u>T lymphocytes</u>. "Notch is an important pathway that researchers have started to identify multiple functions for in normal tissues and in cancer," said Maillard.

The research team found that Notch-deficient T cells had a markedly



reduced ability to produce inflammatory mediators and to damage the normal organs of the recipient mice.

However, unlike previous interventions, Notch inhibition had selective effects and did not cause global immunosuppression. In particular, the Notch-deficient T cells remained able to efficiently kill <u>cancer cells</u>. This resulted in the elimination of the tumor cells without causing life-threatening graft-versus-host disease.

The LSI team is excited by the future prospects brought by this discovery. In particular, an expanding set of reagents is being developed to target components of Notch signaling that can someday be developed into effective new therapies for patients.

This work was supported by an Innovation Award from the Damon Runyon Cancer Research Foundation, the American Society of Hematology, and the University of Michigan Comprehensive Cancer Center.

## More information:

bloodjournal.hematologylibrary.org/papbyrecent.dtl

## Provided by University of Michigan

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