

Researchers find regulatory T-cell clue to help prevent GVHD

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Graft-versus-host disease (GVHD) is a serious risk in many kinds of cell transplants, including for stem cell transplants carried out when stem cells are partially depleted of conventional T cells, which play an important role in the immune system. Now, researchers at Moffitt Cancer Center have tested a process by which T regulatory cells (Tregs) can be "expanded" to help prevent GVHD.

"Tregs play a dominant role in transplantation tolerance," said Claudio Anasetti, M.D., corresponding author of a study carried out by a team of Moffitt investigators and published in a recent issue of the journal *Blood*. "Adoptive transfer of freshly isolated human Tregs has prevented [GVHD](#) in patients treated with allogeneic (other than self-donated) [stem cell transplants](#). However, some transplants will require a greater number of Tregs that can only be obtained through expanding Tregs outside of the body."

The researchers suggest that therapeutic applications will require Tregs to be expanded by more than a hundredfold.

"There is a need to improve on Treg expansion protocols before allo-specific Tregs can be brought into the clinic," said Anasetti, chair of the Department of Blood & Marrow Transplant at Moffitt.

The authors note that a recently adopted expansion process has used dendritic cells to activate Tregs.

"Dendritic cells have been identified as having unique capabilities for expanding Tregs," cited Anasetti, whose work focuses on preventing GVHD in mouse models and in humans.

To carry out the present study, Anasetti and his fellow researchers adopted a one-step process to expand allo-specific Tregs by dendritic cell stimulation.

"Our work opens an opportunity to study tissues as sources of antigens for indirect presentation to activate and expand therapeutic Tregs," concluded Anasetti. "If effective, this approach could prevent GVHD while sparing, at least in part, graft-versus-leukemia or graft-versus-tumor responses."

Provided by H. Lee Moffitt Cancer Center & Research Institute

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