

Multiple myeloma: A bold study to make allografting safer and more efficient

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Credit: University of Montreal

In a 10-patient cohort study led by Dr. Jean Roy, hematologist and professor at the Faculty of Medicine of Université de Montréal, that aims to understand how to mitigate the risks associated with the

treatment of multiple myeloma, a malignant cancer, researchers have adopted an innovative approach based on the unique immunological properties of umbilical cord blood in an effort to improve the safety and efficiency of allografting, the preferred treatment for this disease.

"This step forward has given new hope to those struck by this terrible disease," said Dr. Denis-Claude Roy, Director of Research at the CIUSSS de l'Est-de-l'Île-de-Montréal (CIUSSS-EMTL).

This work, conducted at Hôpital Maisonneuve-Rosemont, is funded by the Canadian Stem Cell Network, the Maryse and William Brock Chair for applied research in stem cell transplantation of Université de Montréal, and the biotechnology company ExCellThera.

The challenge of allografting

Multiple myeloma, one of the most common bone marrow cancers in Canada, is still incurable, and those afflicted have a life expectancy of approximately five to six years. Patients who are at an advanced stage of the disease who have chromosomal anomalies, show myeloma cells in their [blood](#), or do not respond to their initial treatment have a reduced life expectancy of approximately three years. Until now, the only possible treatment for patients with multiple myeloma has been stem cell grafting from related or unrelated donors. However, allografting is associated with several side effects, the most significant being graft-versus-host-disease, a condition that arises when the donor cells attack the receiver's organs. This complication has a 10-to-20 per cent mortality rate. In long-term survivors, immune system complications (up to 80 per cent of patients) and relapses (up to 50 per cent of patients) are still much too frequent. Allografting must therefore be refined to successfully treat a greater number of multiple myeloma patients.

Umbilical cord blood is associated with a significantly lower incidence

of immune system complications and has a powerful anti-cancer effect. For decades, it has been used to treat the disease in children, but rarely in adults due to its small number of stem cells.

A molecule of hope

Recently, a new molecule called UM171, discovered by Dr. Guy Sauvageau and his colleagues at Université de Montréal, made it possible to increase up to 30 times the number of stem [cells](#) in [umbilical cord blood](#) in the laboratory, and showed promising results in 22 patients primarily suffering from leukemia. In the study, which will be conducted on a cohort of 10 multiple [myeloma](#) patients at high risk of relapse, umbilical cord blood will be grown in a laboratory using the UM171 molecule, then injected in patients in the hope of treating the disease with fewer immune system complications. If the predicted results are confirmed, allografting umbilical cord blood, made possible thanks to the UM171 molecule, could become the preferred treatment for [patients](#) with [multiple myeloma](#).

Provided by University of Montreal

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