

Grafts against cancer

February 1 2007

A research team led by Prof. Claude Perreault, Université de Montréal, is announcing a major discovery in Genomics. This will generate a fundamental impact on the treatment of blood cancers (leukemias and lymphomas) by means of peripheral blood T-cell grafts.

Peripheral blood stem-cell grafts from immunologically-matched donors are still the best way to treat or cure patients with certain leukemias and lymphomas. In Canada alone, 10 000 people have benefited from this therapy. However, this type of graft is risky because of a major potential complication: "graft-versus-host disease" (GVHD). GVHD is a rejection of recipient tissues by the donor's T cells that see their new host as 'non-self'. As many as 60% of recipients develop GVHD.

In the best-case GVHD scenario, the disease markedly diminishes the patient's quality of life. In the most severe cases, GVHD may cause death. Because of the GVHD risk, graft of donor T cells can only be proposed to a small number of patients having leukemia or lymphoma. And until now, no reliable prediction could be made to determine if a recipient would be likely to incur GVHD or not. Published this week in the Public Library of Science Medicine (PLoS Medicine) this discovery provides a sure way of identifying cells that will cause GVHD.

Today's announced discovery opens the way to a reliable test to determine whether or not the cells of a donor will likely cause GVHD or not in the recipient, if the graft is performed. Creating a predictive test based on this discovery will have a considerable impact on the future of patients.

"A predictive test that will identify dangerous and non-dangerous donors will allow physicians to choose the best donor," explains Dr Perreault. "If no 'non-dangerous donor' is found, then a physician can give the recipient a more intensive immuno-suppressive treatment to prevent GVHD. This opens the door to hematopoietic cell transplant personalized medicine."

"In this research, the special combinations of clinical design, advanced cell-sorting technology, large-scale gene expression profiling, and novel statistically-supported outcome-predictive computational analyses have produced together a very effective systems biology approach," says Biosystemix co-founder Dr. Larry Greller. "We are excited by the practicality and potential medical utility of these results, and look forward to their continuing validation in larger contexts," says Biosystemix co-founder Dr. Roland Somogyi.

For Génome Québec, it is a truly dramatic breakthrough that will not only improve and save lives, but also highlights the importance of backing and promoting knowledge in Genomics. According to Paul L'Archevêque, President and CEO of Génome Québec, "The researchers have done tremendous work! Clinical work will be transformed and moreover, first-line needs will be met in hospitals, from bench to bedside."

The study involved 13 senior researchers and 50 patients suffering from haematological cancers and their respective immunologically-matched sibling donors. The patients were from the Maisonneuve-Rosemont hospital in Montreal. Statistical analysis and mathematical outcome-predictive modeling of these complex data were provided by the biotech company Biosystemix Ltd. In the coming months, the discovery will be extended in larger test phases to other hospitals in Canada and the US.

Source: University of Montreal

Citation: Grafts against cancer (2007, February 1) retrieved 19 April 2024 from <https://medicalxpress.com/news/2007-02-grafts-cancer.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.