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PRESS KIT - ABOUT THE HEMATOLOGICAL CELL THERAPY UNIT (UTCH)

The Hematological Cell Therapy Unit (UTCH) at the Jules Bordet Institute is a platform dedicated to translating new cell therapies into reliable and effective treatment thanks to innovative approaches in the fields of regenerative medicine and cancer immunotherapy. It has three tissue banks with national and international accreditations of the highest level (hematopoietic cell bank, umbilical cord blood bank and non-hematopoietic cell bank). Closely integrated with an apheresis unit for the upstream collection of stem cells and with a transplantation service downstream, the Cell Therapy Unit also cooperates with the Institute's translational research units in developing new cellular products for clinical usage, as well as with the H.U.B laboratory to verify cell collection. The Cell Therapy Unit provides essential expertise for implementing and developing cellular immunotherapy at the three hospitals that constitute the Brussels University Hospital as well as at the hospitals of the ULB network. It also explores gene therapy potential through its international partnerships.

In immunotherapy, the action of cell therapy makes it possible to restore the immunity system of leukaemia patients or to stimulate the production of 'normal' red blood corpuscles that are useful in the case of hemoglobin diseases such as drepanocytosis. The hematopoietic stem cells that give rise to blood cells - responsible for the production of red blood corpuscles, white blood corpuscles and platelets – are collected as part of a transplant activity either from the patient's own cells or from a family or non-family donor.

Another role of the UTCH is to collect lymphocytes so that they can be transformed for use in hematology (e.g. lymphomas, myelomas – bone marrow disease) or, as in gene therapies, modified by introducing a deficient gene in the case of certain rare diseases (e.g. certain diseases of the red corpuscle) before reintroducing them in the patient. Numerous international and national partnerships make it possible to participate in this global movement that is very exciting for the care teams.

The therapeutic innovations made possible by such a unit: immunotherapy, gene therapies and drepanocytosis.

In immunotherapy, the action of the cell therapy makes it possible to restore the immune system in leukaemia patients, thereby enabling it to attack the tumour cells and to cure certain patients. Another role of the UTCH is to collect lymphocytes so that they can be transformed for use in hematology (e.g. lymphomas, myelomas – bone marrow disease). Numerous international and national partnerships make it possible to participate in this global movement that is very exciting for the care teams.

The CAR-T cells programme is another very promising therapy. This involves transforming white blood corpuscles by providing them with a receptor that enables them to recognise cancer cells. Already available thanks to existing partnerships, the idea in future years is to move to a local production of this type of treatment for patients suffering from rare oncological diseases, such as rare lymphomas.

Also, hopes for new therapies necessarily mean research to benefit children. The UTCH participates in protocols for the treatment of rare non-oncological diseases in partnership with the HUDERF in paediatrics, most notably for drepanocytosis. At present, the sole option for a cure for drepanocytosis is a stem cell or bone marrow transplant. This requires a compatible donor and is not without risk, hence the search for alternatives in cell therapy. Gene therapy applied to this disease of the red blood corpuscles, which can result in severe chronic and painful complications and that impacts on quality of life and life expectancy, involves introducing a missing gene or modifying an existing gene. A research protocol is currently open at the HUDERF for children and young adults and this technique is very promising.

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On several occasions in the course of its history the UTCH has played a pioneering role and the launch of this new unit places it in prime position to become a reference centre in this field.

Towards a local production of CAR-T cells

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Soon a new curative alternative in combating drepanocytosis in children?

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