Innate Lymphoid Cells (ILCs), new predictive markers for GvHD[1] after allogeneic hematopoietic stem cell transplantation (HSCT).

Initiated in 2015 by Frédéric Vely, a researcher in Éric Vivier's team[2], in collaboration with Vincent Barlogis[3], this project received financial support from CRYOSTEM[4] for access to biological resources and consents from 124 adult and pediatric patients.

Following on from an initial research project published in the journal *Blood*[5] in 2014, the aim of this project was to identify new cellular markers predictive of the onset of GvHD, in particular through two studies: a first retrospective longitudinal study including patient samples (cells in DMSO) included in the CRYOSTEM collection, and a second prospective study in bone marrow transplant patients in Professor Gérard Michel's Paediatric Haematology and Oncology Department, in collaboration with Professor Vincent Barlogis.

The results obtained on a small cohort of patients demonstrated a correlation between low levels of ILCs and a high risk of developing GvHD, a first in the paediatric field which was published in *Journal of Leukocyte Biology*[6]. In this study, we were able to draw on specific expertise developed over several years in the laboratory to quantify levels of ILCs that are very low in peripheral blood.

The pool of samples made available by CRYOSTEM enabled us to observe the predictive value of the presence of ILCs in the occurrence of chronic forms of GvHD (cGvHD for chronic Graft-versus-host disease) only. An interesting prospect would now be to carry out this work on a larger cohort of patients, using samples taken before and at an earlier stage in the reconstitution of cell populations after transplantation, to confirm these results for acute forms of GvHD (aGvHD for acute Graft-versus-host disease). This new step would allow stratifying patients for aGVHD and cGVHD risk using ILC populations as a new predictive marker.

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[1] Graft-versus-host disease (GvHD) ou maladie du greffon contre l'hôte
[2] Centre d'Immunologie de Marseille Luminy - INSERM U1104, CNRS UMR7280, Marseille Immunopôle - AP-HM
[3] Service d'Hématologie, Immunologie et Oncologie Pédiatrique (HIOP) - AP-HM
[4] Link on CRYOSTEM website
[5] Link on publication
[6] Link on publication

The advantages of the CRYOSTEM's biological resources collection for researchers.

CRYOSTEM is a national cohort of high strategic value for research into human immunology in the field of bone marrow transplantation. The CRYOSTEM network provides the scientific community with 3 types of samples derived from blood samples taken at different stages of the transplant kinetics: viable cells in DMSO, dry pellets and plasma. All cohort's samples and associated data are managed by a database software program, MBioLims CRYOSTEM, shared by all CRYOSTEM centers. This unique organization allows researchers to benefit from a high degree of homogeneity in sampling practices, enabling them to address a wide range of scientific questions with high-quality, reliable samples.

"The quality of the samples provided for this study and their level of annotation is a major strength of CRYOSTEM for basic research projects like ours, but also for their industrial applications in the clinical field."

CRYOSTEM also facilitates access for researchers to a multicentric collection that meets all the regulatory standards issued by the Commission Nationale de l'Informatique et des Libertés (CNIL), the Comités de Protection des Personnes (CPP) as well as legal standards, with access to patient consents and information notes for data exploitation. CRYOSTEM also has a dedicated patient information page on its website, with the latest advances in research projects using its biological resources collection.