



CRYOSTEM network fueling excellence in translational research on Hematopoietic Stem Cell Transplantation (HSCT) complications

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INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) is the only curative treatment for numerous blood diseases (such as leukemia, lymphoma, aplastic anemia and others) : thanks to HSCT, **patients have the opportunity to start from scratch**. However, almost 50% of patients, cured of their hematological diseases, have to face short and/or long-term complications, including those conditioning-related, infections and notably **Graft versus Host Disease (GvHD)**. Moreover, 25% of these patients are suffering from severe complications, too often leading to death.

Consequently, the ultimate and current goals are **to maximize HSCT benefits by reducing complications onset and to develop curative treatments**. But there are still too many grey areas in the knowledge and understanding of HSCT complications physiopathology, and even more of GvHD, along with limited relevant studies (relatively few patients and scarcely any long-term cohorts in the field).

In this context, the **CRYOSTEM project** was initiated in 2010 by Prof. Peffault de Latour and Dr. Calmels, promoted by the Francophone Society for Stem Cell Transplantation and Cell Therapy (SFGM-TC) to establish **a nationwide, prospective and standardized multicenter cohort**. Since its creation, CRYOSTEM has stacked all the odds in its favor and has evolved in order to achieve not only its primary goal but also to be an entire part of the research in the field by supplying the national and international scientific community with its samples, promoting science and innovative projects to understand, predict and treat HSCT complications and improve transplanted patients' healthcare.

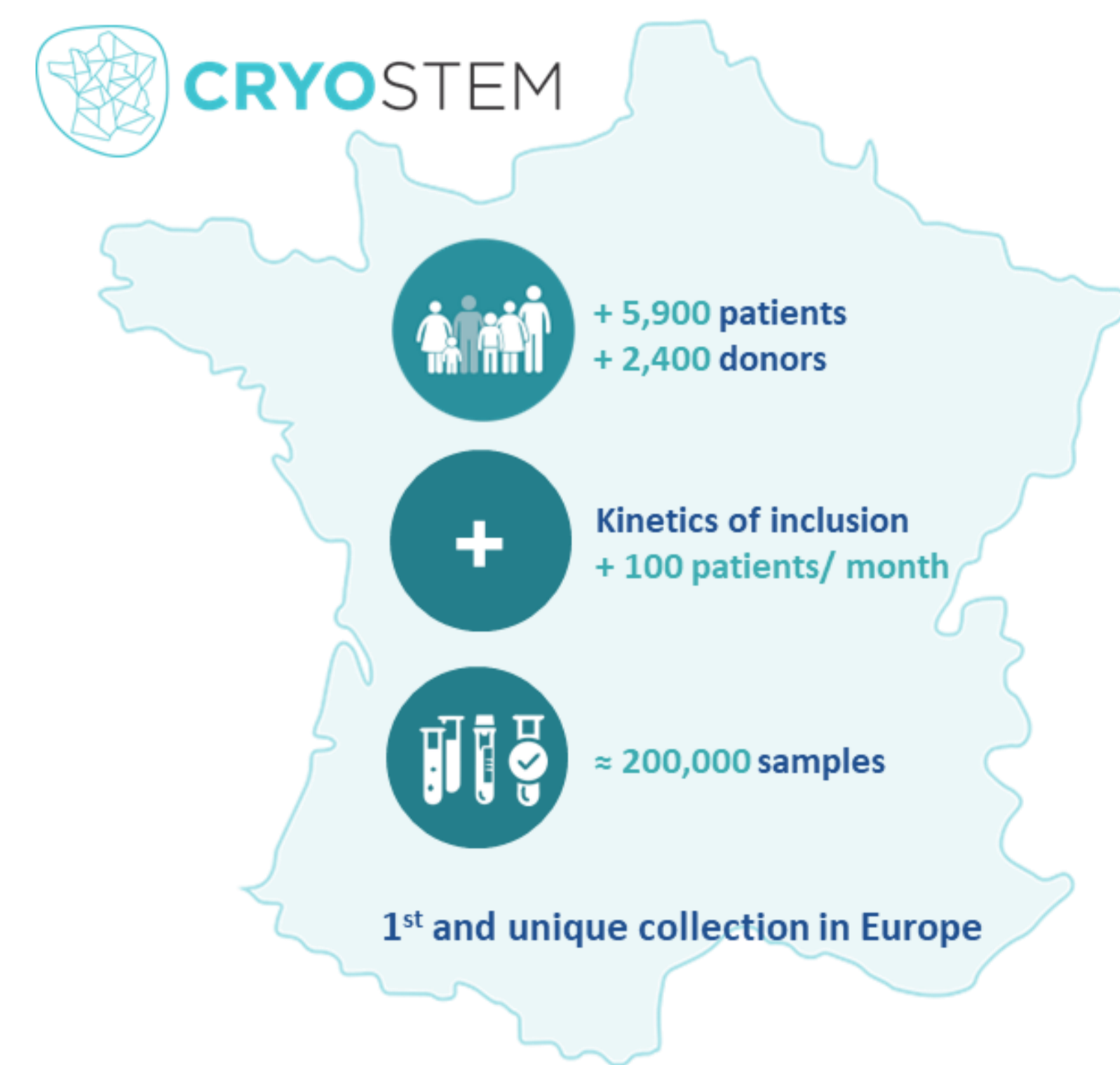
BUILDING A UNIQUE NETWORK AND COLLECTION IN EUROPE

CRYOSTEM operates an enlarged **ISO 9001-certified** network comprising **all the French HSCT Units (adult and pediatric) and 28 Biological Resources Centers (BRCs)**.

In ten years, almost **6,000 patients and 2,400 donors** have been included in CRYOSTEM (as of January 1st, 2022). Blood samples are taken **pre- and post-HSCT** in line with a simple sampling schedule, **systematically (100 days, 1 and 2 - years post-transplant)** and taking into account **acute and/or chronic GvHD appearance**.

BRCs process blood samples in line with **standardized and harmonized procedures** so as to establish a high-quality and homogeneous collection, independently at each BRC. **Three sample types** are isolated and cryopreserved from blood samples: **plasma, dried pellets and viable cells in DMSO**.

All the **well-annotated clinical data associated to biological samples** are centralized in a unique secure database, directly linked to the EBMT (European Society for Blood and Marrow Transplantation) European clinical registry, **PromISE**.



FUELING EXCELLENCE IN RESEARCH ON HSCT COMPLICATIONS

International scientific valorization

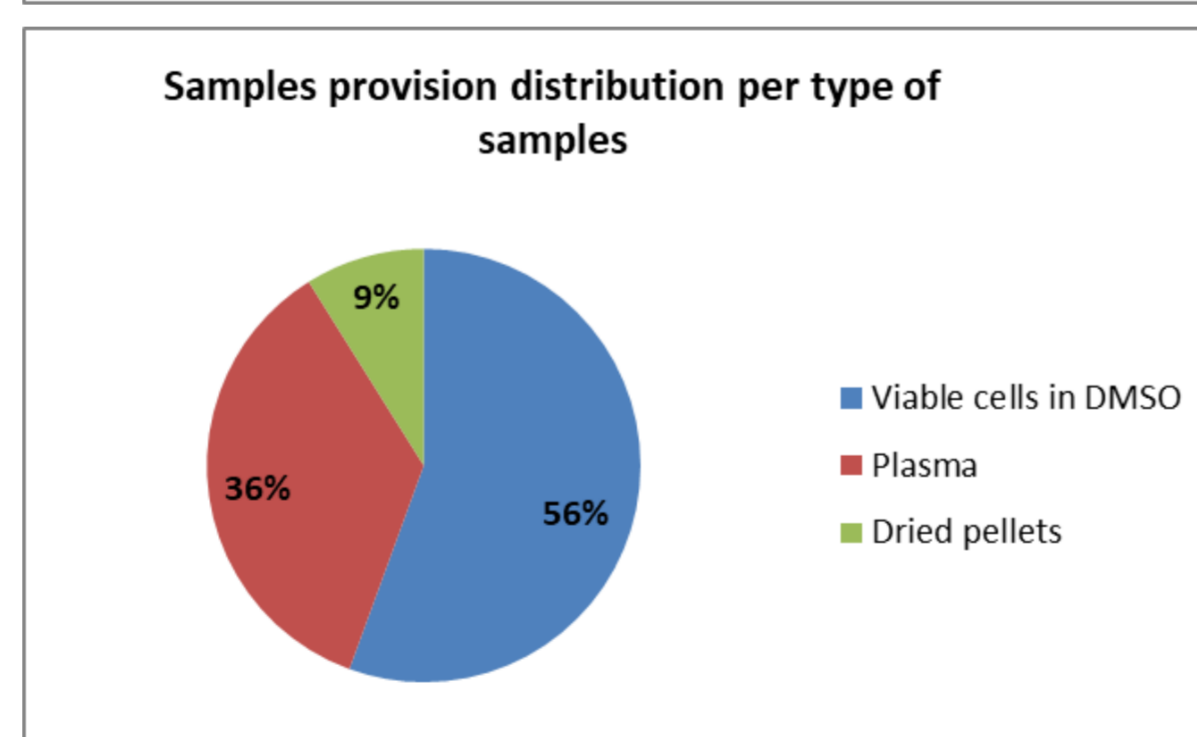
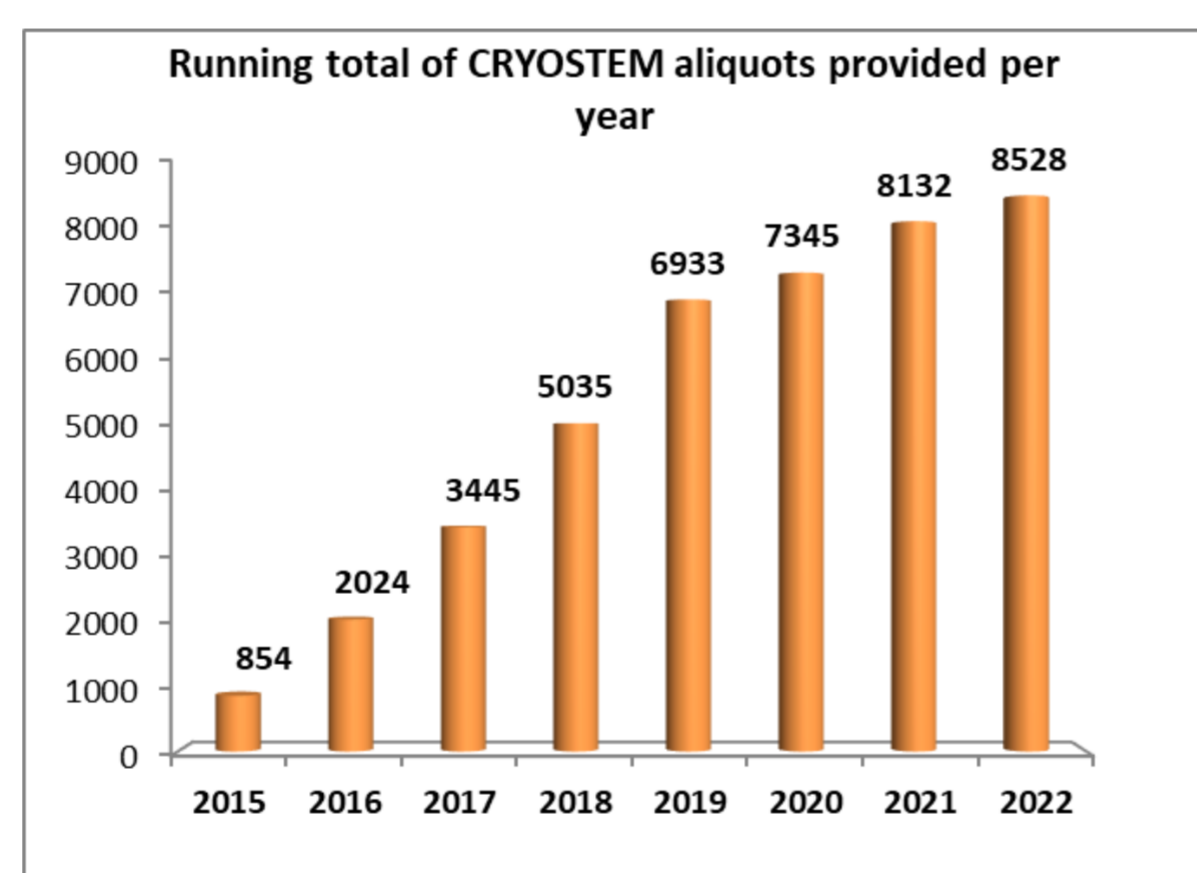
17 projects (academic and industrials)



+ 8,500 provided samples

+ 7 publications

Nature Communications - Blood Advances - Science Translational Medicine
Journal of Leukocyte Biology
Journal of Immunotherapy for Cancer
Pathogens - Blood



One of CRYOSTEM initial objectives was supplying with these samples the national and international scientific community, from both academia and industry, for **large-scale research on GvHD and other HSCT complications** to increase biomedical knowledge in the field. The ultimate goal is to improve the healthcare of transplanted patients by obtaining a **better understanding of HSCT complications physiopathology** and by **developing predictive tests and treatments**.

Since mid-2015, physicians and scientists are getting annually access to the CRYOSTEM collection. CRYOSTEM Scientific Committee and international experts proceed to the selection and review of the applications.

To date, **17 research projects exploring GvHD or HSCT complications** have been granted with almost **8,500 CRYOSTEM samples**. **7 scientific publications** have already highlighted the results obtained with CRYOSTEM biological resources, illustrating the relevance, the quality and the homogeneity of the collected samples and associated data.

CRYOSTEM NETWORK BIOBANKING EXPERTISE

Beyond the collection dedicated to HSCT complications, the CRYOSTEM network has developed a **strong biobanking expertise** acquired through the CRYOSTEM project implementation. This expertise, now valued through a **dozen academic and industrial collaborations**, is notably based on **practices harmonization, optimization of processing delays and decentralization**. It has made it possible to answer several requests for the **constitution of collections of biological resources** within the framework of collaborative projects (**enrichment of existing cohorts or collections, ancillary studies of clinical protocols**) in the field of **HSCT and cell therapy**. Thus, since 2018 the CRYOSTEM network has been called upon for support in the **implementation of biological resources collections and the management of regulatory, quality, operational, monitoring and valorization issues**.

Increased strategic partnerships



12 biological resources collections

+ 2,600 patients included in all protocols

Type of collected samples : **blood, skin biopsies, bone marrow, stools**

CONTACT AND SPONSORS

www.cryostem.org
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