XN STEM CELLS

Know more.
Decide with confidence.
Act faster.

Supporting the apheresis ward with excellent lab service

EXCELLENT CORRELATION WITH CD34

SIMPLE AND FAST PROCEDURE WITHOUT PRE-ANALYTICAL STEPS

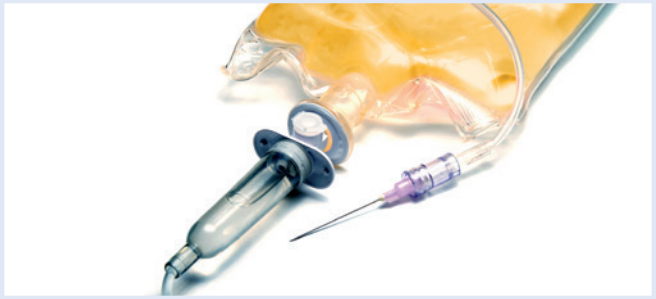
RESULTS CAN ALWAYS BE PROVIDED BY THE LAB (24/7)

STANDARDISED RESULTS

A fast method to monitor both stem cell mobilisation and collection, plus to predict the product quality.

The XN Stem Cells method has been shown to be comparable with the CD34 immune flow cytometry count in mobilised peripheral blood.

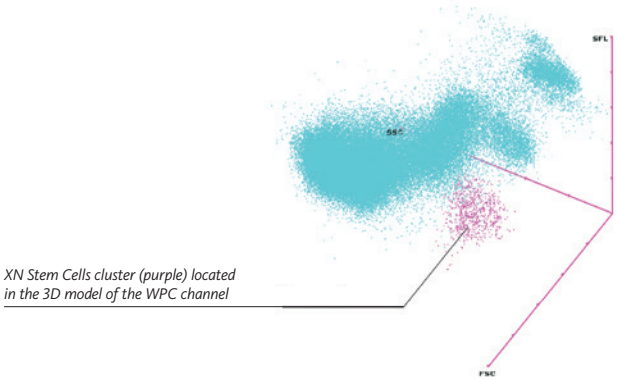
Decide when to start and end apheresis with confidence.



Besides checking the peripheral blood for mobilised stem cells, enumerating stem cells from the intermediate apheresis product can substantially improve the apheresis workflow in terms of saving both time and costs.

Your benefits in daily routine

- Now anyone in your lab can do a stem cell count at any time: Automated enumeration on your XN haematology analyser – simple, quick and reliable.
- Rely on accurate results: clear differentiation of cells according to their membrane lipid composition in the WPC channel using fluorescence flow cytometry – no interference with NRBC, myeloid progenitor cells or lymphocytes.
- Relieve your staff in the lab and colleagues on the ward: The result is available within a few minutes – and there is no need for manual gating, pre-treatment or sample washing, which increases consistency.
- Support tighter monitoring and process optimisation: Easy to run multiple analyses of a patient – 190 µL blood or apheresis material are sufficient for testing.
- Save time and costs in your lab: Using XN Stem Cells helps to reduce CD34 counts to the required minimum.

Diagnostic parameters	HPC# – total count of haematopoietic progenitor cells HPC% – percentage of haematopoietic progenitor cells related to the total WBC count (Only available with the XN Stem Cell licence)
Technology of XN Stem Cells ■ Fluorescence flow cytometry and WPC channel reagent system	 *XN Stem Cells cluster (purple) located in the 3D model of the WPC channel* The WPC channel, with its unique combination of reagents, detects abnormal membrane composition and nuclear content. The lipid membrane composition of immature cells is different from that of mature cells or abnormal blasts. This lets one separate stem cells from other cell populations. First, the lysis reagent perforates the cells' membranes, whereby the extent of the membrane damage depends on the type and state of the cell (e.g. activation status, maturity level). Next, a fluorescence marker labels the DNA in the cell. The intensity of labelling depends on the degree of membrane perforation and the accessibility of the chromatin (in stem cells the chromatin is relatively dense and only slightly accessible to the fluorescence marker). The stem cell population is characterised by a relatively large size (high FSC), low intracellular complexity (low SSC) and low DNA labelling (low SFL).

Measurement mode	In the dedicated XN HPC mode, 190 µL of blood are aspirated. Stem cells are counted four times, and the mean value of these four measurements is reported, which ensures the count is particularly accurate and reliable.
Impact on apheresis workflow ■ Apheresis start point ■ Apheresis end point	XN Stem Cells offers a fast, simple and reliable method on a routine haematology analyser to count haematopoietic progenitor cells with an excellent correlation with CD34 counts. This is used to assess the efficiency of stem cell mobilisation and determine the starting point for stem cell collection. In autologous transplantations, a CD34 count is performed three times on average from the mobilised blood of a patient. Using XN Stem Cells can reduce the number of CD34 analyses to one test per patient, thereby offering the potential of significantly reducing costs and time. The necessary volume of apheresis is usually calculated using the concentration of CD34+ cells in the peripheral blood prior to apheresis and the expected collection efficiency. However, collection efficiency may vary among patients, as some stem cells are additionally mobilised from bone marrow during apheresis. Measuring the concentration of collected stem cells in the intermediate apheresis product can determine the efficiency of apheresis more accurately. Based on the intermediate count, stem cell collection time can be adjusted accordingly: shortened in case of an efficient collection and prolonged in case of poor collection, which may help to avoid multiple apheresis and improve patient experience.

The XN-Series analysers offer a holistic approach for infection, thrombocytopenia and engraftment monitoring with advanced clinical parameters throughout patients' entire haematopoietic stem cell transplantation. Dedicated information is available on other XN Stem Cells information cards: please contact your Sysmex representative.

Benefit from more background information in our freely accessible white papers:
www.sysmex-europe.com/whitepapers

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