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1. Description

Components	100 mL StemMACS HSC Expansion Media XF or 500 mL StemMACS HSC Expansion Media XF
Specifications	pH: 7.0–7.5 Osmolality: 320–350 mOsmol/kg
Storage	Store protected from light at –20 °C. The expiration date is indicated on the label. To avoid repeated freeze-thaw cycles, StemMACS HSC Expansion Media XF should be aliquoted to the preferred sample volume, and stored at –20 °C until use.

Quality statement

StemMACS HSC Expansion Media XF is intended for research use. It is not intended for human or animal diagnostic or therapeutic use.

1.1 Background information

StemMACS HSC Expansion Media XF (xeno-free) is an optimized and standardized medium for the expansion of isolated CD34⁺ hematopoietic stem and progenitor cells. The media formulation is serum-free and xeno-free and is manufactured under strictly controlled conditions. StemMACS HSC Expansion Media XF offers consistent lot-to-lot performance. Recombinant growth factors, required for the optimal growth and expansion of hematopoietic stem cells (HSCs), have not been added to the media. They are available as separate product and have to be added prior to use. StemMACS HSC Expansion Cocktail (# 130-100-843) contains a combination of recombinant human cytokines designed to support the proliferation of human hematopoietic progenitor cells. It contains recombinant human stem cell factor (SCF), Flt3-ligand, and thrombopoietin (TPO). This combination of cytokines induces the proliferation of HSCs and immature progenitors.

1.2 Applications

- Expansion of CD34⁺ cells from cord blood, peripheral blood, or bone marrow.

2. Protocol

1. Preparation of cells

Isolate hematopoietic stem and progenitor cells using standard methods, e.g., the CD34 MicroBead Kit (# 130-046-702) or CD34 MicroBead Kit UltraPure (# 130-100-453). After separation, determine CD34⁺ cell purity and cell number by flow cytometry.

2. Preparation of StemMACS HSC Expansion Media XF

To avoid repeated freeze-thaw cycles, StemMACS HSC Expansion Media XF should be dispensed into appropriate aliquots.

1. Thaw media bottle overnight at 4 °C.
2. Mix medium by gentle rotation of the bottle.
3. Aliquot into sterile tubes.
4. Freeze aliquots at –20 °C.

Prior to use thaw the media at room temperature and add StemMACS HSC Expansion Cocktail at a 100× dilution.

3. Expansion

For expansion seed the CD34⁺ cells in StemMACS HSC Expansion Medium XF supplemented with StemMACS HSC Expansion Cocktail.

The optimal number of cells plated, culture period, and feeding intervals will depend on experimental set-up and should be determined individually.

For CD34⁺ cells from cord blood, e.g., a cell density of 5000 cells/mL is recommended.

Incubate cells at 5 % CO₂ and 37 °C.

4. Analysis

After expansion, cells should be counted and analyzed for the expression of hematopoietic markers, such as CD45, CD34, CD133, CD38, or CD45RA.

The functionality of the expanded cells can be analyzed, e.g., by CFU assays, LTC-IC assays, or transplantation into immunodeficient mice.

All protocols and data sheets are available at www.miltenyibiotec.com.

Warranty

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