Applied StemCell, Inc.
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Datasheet

Human Cord Blood CD34+ Stem & Progenitor Cells (Mixed Donor, Frozen)

Product Information

Catalog Number(s)

Catalog ID#	Product Name	Format	Size
ASECBCD34mix-C0.5M	**Human Cord Blood CD34+ Stem & Progenitor Cells (Mixed Donor)**	**Frozen**	**0.5 million**
ASECBCD34mix-C1M	Human Cord Blood CD34+ Stem & Progenitor Cells (Mixed Donor)	Frozen	1 million
ASECBCD34mix-C5M	Human Cord Blood CD34+ Stem & Progenitor Cells (Mixed Donor)	Frozen	5 million

Description

CD34+ stem cells are multipotent cells that can be found in human umbilical cord blood. These cells have the capacity to differentiate to all blood cell types. CD34, a glycosylated transmembrane protein, functions as a marker for haematopoietic stem cells and primitive blood- and bone marrow-derived progenitor cells.

Tissue

Human Cord Blood, Mixed Healthy Donors

Quantitiy

0.5 million cells/vial

Cell Isolation Method

Positive Immunomagnetic Cell Separation

Sample Collection Process

Cord blood samples are collected from IRB approved donors that have have fully consented and undergone viral testing. Cord blood is collected in Citric Phosphate with Dextrose Buffer (CPD), and the CD34+ cells are isolated using positive immunomagnetic cell separation procedures.

Shipping

Dry Ice

Storage and Stability

Cells are cryopreserved in CryoStor® CS5 and are stable at -135^{o}C or below for several years. Store the cells in vapor phase liquid nitrogen.

PLEASE BE AWARE: Storage in liquid phase can increase the potential for liquid nitrogen to leak into the vials. Upon thawing, the liquid nitrogen returns to the gas phase, resulting in a dangerous build-up of pressure within the vial. This can result in the vial exploding and expelling not only the vial contents but also the vial cap and plastic fragments of the vial.

Quality Control

Each lot of Human Cord Blood CD34+ Stem & Progenitor Cells has been tested for viability, sterility, and total cell count following recovery from cryopreservation. In addition, each donor has been tested for Syphilis, Hepatitis B Core Antibody (Anti-HBc EIA), Hepatitis B Surface Antigen (HBsAg EIA), Hepatitis C Virus Antibody (Anti-HCV EIA), Humman Immunodeficiency Virus Antibody (HIV1/2), Human T-Lymphotropic Virus Antibody (HTLV-1/II), HIV-1/HCV/HBV Nucleic Acid Testing, WNV Nucleic Acid Testing, and Trypanasoma cruzi Antibody (CoA available upon purchase).

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Safety Precaution	**PLEASE READ BEFORE HANDLING ANY FROZEN VIALS.** Please wear appropriate Personal Protection Equipment (lab coat, thermal gloves, safety goggles and a face shield) when handling frozen vials. Viral testing cannot guarantee that the donor is completely virus-free. Treat the sample(s) as potentially infectious, and follow the appropriate handling precautions described in the biological safety level 2 (BSL2) guidelines. Do not use sharps (needles/syringes) when working with the product.
Warranty	The cell product warranty lasts 6 months from the date of delivery. Warranty is valid only if the product is stored at the appropriate storage conditions immediately upon arrival. Cells can be stored at -80ºC for a few weeks and maintain good cell viability, but the warranty will be voided.
Restricted Use	This product is for research use only and not intended for human or animal diagnostic or therapeutic uses.

Protocol

1. Thawing Protocol

First, check the labeled total cell number. Work quickly during the whole procedure to achieve high viability and recovery. Cell counting should be done immediately after thawing and before wash. When diluting the cells for counting, only use warm culture medium to dilute the cells. Do not use PBS as it will reduce the viability.

1.1. Warm enough culture medium containing 10% FBS (RPMI 1640, IMDM, DMEM etc.) in a 37°C water bath.
1.2. Wipe the outside of the vial with 70% ethanol or isopropanol.
1.3. In a biosafety clean hood, twist the cap a quarter-turn to relieve internal pressure and then retighten the vial.
1.4. Quickly thaw cells (vials) in a 37°C water bath by gently shaking the vial in the water. Take the vial out when there is a small ice crystal left.
Note: Work quickly in the following steps to ensure high cell viability and recovery.

1.5. Wipe the outside of the vial with 70% ethanol or isopropanol.
1.6. Measure the total volume of the cell suspension using a 2 mL serological pipette. This volume will be used to calculate the total number of cells provided.
1.7. Take a 20 µL aliquot of cells for counting. Dilute the cells with warm culture medium.
1.8. Transfer the remaining cell suspension to a sterile 50 mL conical tube.
1.9. Rinse the vial with 1 mL of warm medium and add it dropwise to the cells, while gently swirling the 50 mL tube.
1.10. Wash by adding an additional 15 - 20 mL of medium dropwise while gently swirling the tube.
1.11. Centrifuge the cell suspension in the 50 mL tube at 300 x g for 10 minutes at room temperature (18 -25°C).
1.12. Carefully remove the supernatant with a pipette and keep a small amount of medium to ensure the cell pellet is not disturbed. Resuspend the cell pellet by gently flicking the tube.
1.13. If cells are starting to clump, add **100 µg of DNase I Solution per mL** of cell suspension and incubate for 10-15 minutes at room temperature.
Note: Do not add DNase I Solution if the cells will be used for DNA or RNA extraction.

1.14. Add 25 mL of medium to the tube.
1.15. Centrifuge the cell suspension at 300 x g for 10 minutes at room temperature.
1.16. Carefully remove the supernatant with a pipette and keep a small amount of medium to ensure cell pellet is not disturbed. Resuspend the cell pellet by gently flicking the tube.
Note: Cell loss of 15-30% can be expected during the wash steps.

1.17. Cells are now ready to use for your downstream applications.

Supporting Data

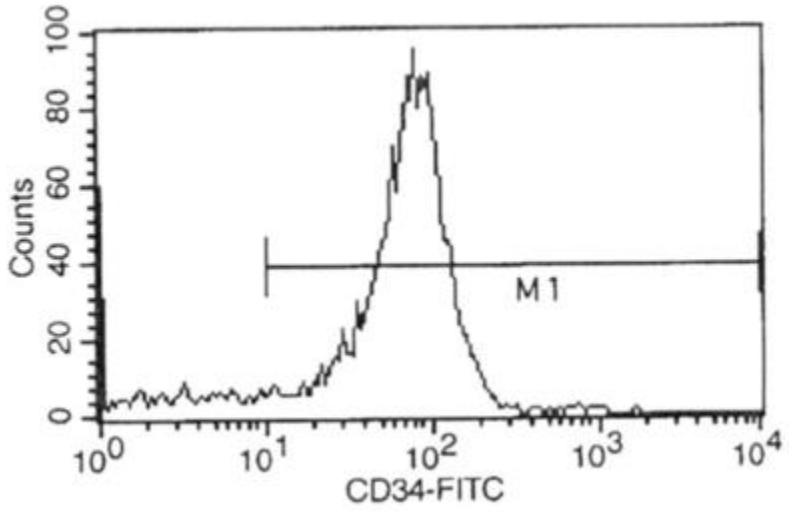

Figure 1: Flow Cytometric Analysis Used to Determine the Total CD34+ Cell Percentage. The flow cytometry data shows that >90% of the cells are CD34+.