

Product Summary

Human CD34⁺ Induced Pluripotent Stem Cells (iPSCs)

Catalog Number: CR1003-500

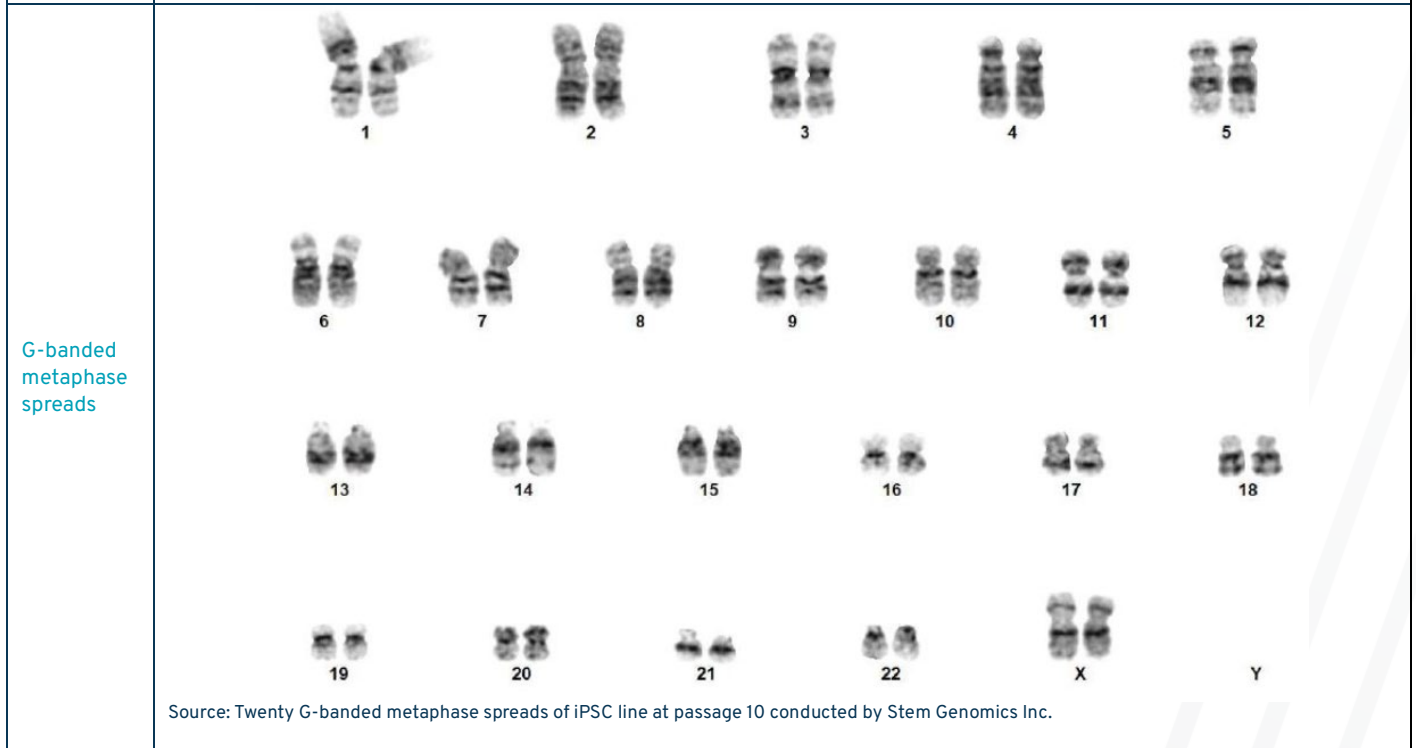
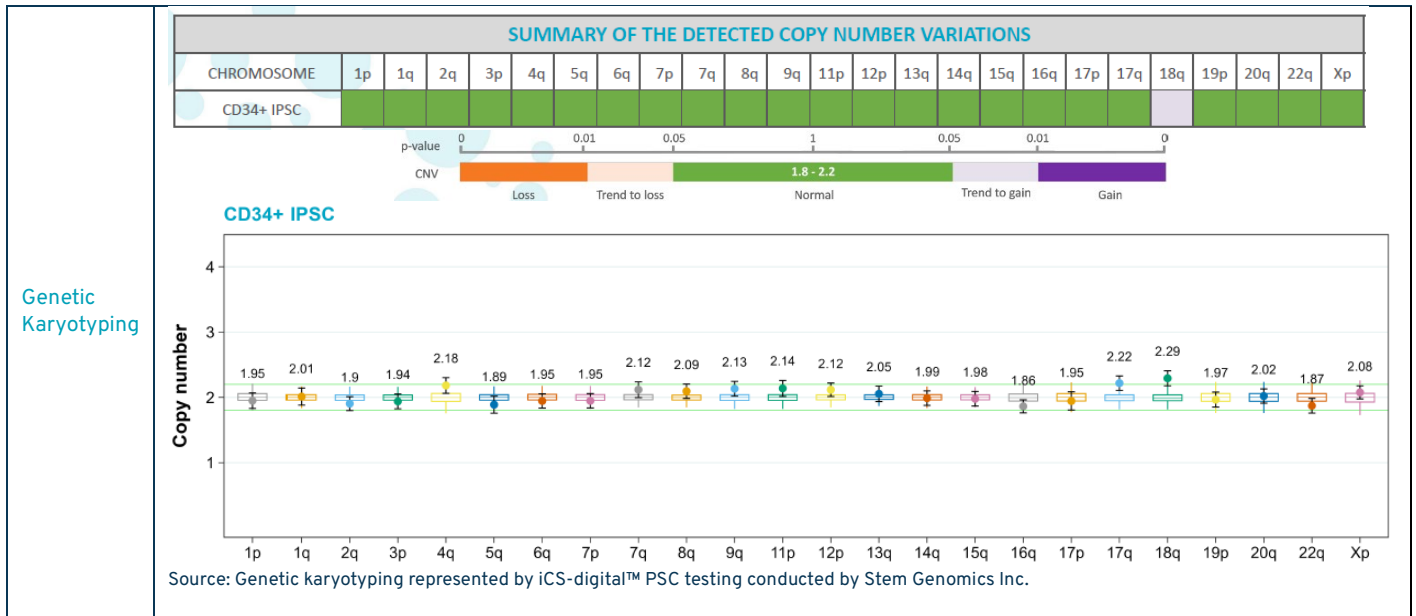
Product Overview	
Product Name	Human CD34⁺ Induced Pluripotent Stem Cells (iPSCs)
Catalog #s	CR1003-500
Quantity	1 vial (approx. 500,000 cells)
Product Form	Frozen
Cell Type	Human Induced Pluripotent Stem Cells
Reagents Needed	<ul style="list-style-type: none"> - Antibiotic - Penicillin/Streptomycin/Amphotericin B solution or Penicillin/Streptomycin solution, 100x (not included)¹ - Basement membrane matrix suitable for adherent cells – based on customer preference, we recommend using Geltrex™ hESC-Qualified Ready-to-Use, Reduced Growth Factor Basement Membrane Matrix manufactured by Thermo Fisher Cat. A1569601) - 70% isopropanol solution - ROCK Inhibitor Y-27632 (Dihydrochloride) – based on customer preference - Cell disassociation reagent – based on customer preference, we recommend using Gibco™ Versene Solution (Cat. 15040066) or STEMCELL Technologies Gentle Cell Disassociation Reagent (Cat. 100-0485)

Product Description
<p>Ethically sourced, healthy CD34⁺ hematopoietic stem cells isolated from cord blood and reprogrammed to a pluripotent state using our patented method, which utilizes non-integrating episomal DNA with our proprietary mix of transcription factors and small molecule chemistry.</p> <p>The CD34⁺ IPS cells are reprogrammed without the use of transcription factors <i>I-Myc</i>, <i>c-Myc</i>, or <i>Lin28</i>, which are linked to neoplastic formation, to ensure downstream safety. Reprogrammed cells exhibit a clean genetic profile and do not accumulate deletions, insertions, or translocations following reprogramming.</p> <p>These cells are ready-to-use and exhibit robust growth with approximately 20-hour doubling times. CD34⁺ IPS cells exhibit higher proliferative cell growth, engraftment capabilities, and pluripotency compared to IPS cells reprogrammed using other methods. This IPS cell line was validated for pluripotency based on colony morphology, positive alkaline phosphatase staining, and expression of SSEA-4. Cells are free of mycoplasma and exhibit classic iPSC colony morphology.</p> <p>The vial contains approximately 500,000 cells. Shipped with dry ice.</p> <p><small>Note: This product is designed and tested to function with Cellular Engineering Technologies Inc. ("CET") product MR1001 Human iPS Cell Growth Media (not included). Although investigators are welcome to use this product with other media formulations, CET cannot and will not guarantee this product's performance. Additionally, such use of third-party media with this product will void CET's warranty should they not function as indicated. Please refer to CET's Terms & Conditions, available at www.cet.bio.</small></p>



Cell Characteristics	
Growth Properties	Adherent
Donor Age	Neonate
Ethnicity	Caucasian
Gender	Female

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Media Formulation Instructions (for MR1001-K Human iPSC Growth Media Kit <u>not</u> included)	
Defrosting the iPSC Growth Supplement	<ol style="list-style-type: none"> Defrost the iPSC Growth Supplement at 4°C (the day before the media is prepared) and 5 mL of antibiotic/antimycotic solution (not included) in a 37°C water bath until the ice in the tubes is no longer visible. Never defrost the iPSC Growth Supplement in a 37°C water bath. It is normal for the iPSC Growth Supplement to appear hazy or have suspended solutes. Gently mix by inversion. Immediately disinfect the tubes and the bottle containing the iPSC Growth Base Media with 70% isopropanol (not included).
Mixing	<ol style="list-style-type: none"> Working in a laminar flow hood, remove 12mL of iPSC Growth Base Media (not included with cells) from the bottle and discard. This and all other procedures must be done in a sterile manner.

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	<ol style="list-style-type: none"> Add the complete contents of the iPSC Growth Supplement to the iPSC Growth Base Media. Add 5mL of the antibiotic/antimycotic solution to the iPSC Growth Base Media¹. Cap the bottle containing the mixed liquid solution and gently swirl a few times. This formulated media is now considered complete media and ready to use with cells.
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Cell Thawing and Plating Instructions	
Cell thawing	<ol style="list-style-type: none"> Before thawing the cells, substrate-coated dishes should be prepared accordingly. Thirty (30) minutes before thawing the iPSC cells, the coating solution on the plates must be entirely replaced with complete media (see Media Formulation Instructions) containing five (5) uM ROCK Inhibitor Y-27632 (not included) and equilibrated to room temperature. Remove the Human CD34⁺ iPSCs vial from the dry ice or a storage unit. Defrost the vial of cells in a 37°C water bath with constant, moderate agitation until ice in the ampoule is barely visible. DO NOT OVERTHAW. Immediately disinfect with 70% isopropanol (not included).
Cell plating	<ol style="list-style-type: none"> Working in a laminar flow hood, open the vial and transfer the contents to a sterile fifteen (15) mL tube. Very slowly, add approximately nine (9) mL of complete media (see Media Formulation Instructions) containing five (5) uM ROCK Inhibitor Y-27632, pre-warmed to 37°C before use. Centrifuge suspended cells at 200 x g for 10 minutes. Decant the medium and gently resuspend the pellet in 6 mL of complete media containing 5 uM ROCK Inhibitor Y-27632. Do this gently to avoid shearing the colonies. Gently pipette the resuspended cells onto the previously coated dishes. One vial of iPSCs contains enough colonies to seed six (6) wells of a standard six (6)-well tissue culture plate or three (3)- one-hundred (100) mm tissue culture dishes. Distribute the colonies evenly and gently rock the plate back and forth. Place the dish in an incubator at 37°C, 5% CO₂, and 95% humidity. After 24 hours, aspirate media from the dish and replenish with fresh complete media (WITHOUT 5uM ROCK Inhibitor Y-27632), pre-warmed to 37°C before use. Repeat media changes every 24 hours.
Observation and expansion	<ul style="list-style-type: none"> The cells should attach over 24 hours. It is normal for these cells to grow slowly initially for one week after thawing and for some colonies to be shed during media changes. Subculture cells at a 1:6 split ratio using cell disassociation reagent (not included).

Storage and Stability		
	Storage Temperature	Storage Time
Human CD34 ⁺ iPSCs Cat. CR1003-500	Upon arrival, place the cells at a temperature below -130°C , preferably in liquid nitrogen vapor, until ready for use	12 months
Human iPSC Growth Media Kit (not included) Cat. MR1003-K		
iPSC Growth Base Media	4°C	3 months
iPSC Growth Supplement	-20°C	Not applicable (use entire contents)
complete media (see Media Formulation Instructions)	4°C	14 days
<i>Avoid repeated freeze-thaw cycles for cells. Avoid repeated exposure to room temperature and light for media.</i>		

Publications and Product Citations
Reduction of Activin A Gives Rise to Comparable Expression of Key Definitive Endoderm and Mature Beta Cell Marker Wildey, A et al. Regenerative Medicine 2024 JAN.

¹ These solutions should be portioned in 5mL aliquots, stored at -20°C, and never frozen/thawed. Although antimycotics are unnecessary, CET highly recommends their usage for long-term cell culture. Antibiotics and antimycotics should not be used as an alternative to proper aseptic techniques.