TrailBio® Hematopoietic Progenitor Cells FAQ

What are iPSC-derived hematopoietic progenitor cells?

iPSC-derived hematopoietic progenitor cells are multipotent stem cells derived from induced pluripotent stem cells (iPSCs). They can differentiate into all major blood cell types, including erythrocytes, monocytes and neutrophils. In literature, they are typically identified by the expression of hematopoietic markers such as CD34 and CD43 and functionally validated through colony-forming unit (CFU) assays.

How are these cells generated?

TrailBio® Hematopoietic Progenitor Cells are differentiated from human iPSCs using a novel directed differentiation protocol that closely mimics natural developmental cues to generate cells with high purity and functional characteristics.

What applications are TrailBio® Hematopoietic Progenitor Cells suitable for?

Researchers can utilize TrailBio® Hematopoietic Progenitor Cells in various applications, such as disease modeling, drug development and toxicity, organ-on-a-chip applications, transplantation research and hematopoietic differentiation studies.

What markers do these cells express?

TrailBio® Hematopoietic Progenitor Cells are multipotent cells that express hematopoietic markers CD34, CD43 and CD90 and negative for CD38 and CD45RA. They express key hematopoietic transcription factors, including MECOM, HLF, HOPX and the gene SPINK2.

What culture conditions are recommended for TrailBio® Hematopoietic Progenitor Cells?

Cells should be cultured under standard conditions: 37 °C, 5% CO_2, in a humidified incubator. For targeted differentiation, lineage-specific culture conditions may be used. These conditions include hematopoietic basal medium and appropriate cytokines to support growth and differentiation.

Are there further differentiation steps needed before these cells can be used in an assay?

No. The cells are ready for use immediately after thawing. Hematopoietic lineage-specific differentiation protocols may be applied immediately post-thaw if desired.

Are any genome modifications used in the production of these cells?

No. TrailBio® Hematopoietic Progenitor Cells were produced without genome modifications. Their differentiation process, generated using our proprietary HD-DoE® technology, closely mimics natural embryonic development.

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How do you confirm that they follow the mesoderm differentiation pathway?

During our directed differentiation protocol, iPSCs commit to the mesoderm lineage, as confirmed by expression of mesodermal markers TBXT, KDR, FOXF1 and MIXL1.

Do you provide custom differentiation services?

Yes, we offer custom differentiation and characterization services to meet specific research needs, including disease modeling and modified differentiation protocols.

How are these cells shipped, and what should be done with the shipping dewar?

Cryopreserved cells are shipped overnight in vials using liquid nitrogen vapor phase. The LN2 shipping dewar does not need to be returned and may be discarded.

What is the recommended storage and shelf life?

Cryopreserved cells should be stored in liquid nitrogen (-135 °C to -195 °C) and used within 6 months from the date of purchase. Upon receipt, promptly transfer cell vials from dry ice to liquid nitrogen storage using proper PPE, avoiding any thawing until cells are ready to be used.

What materials are recommended for thawing of the cells?

Recommended materials for cell thawing are sterile filtered 5% BSA solution in PBS (for coating), sterile 15 ml conical, pre-warmed media and sterile wide-bore pipette tips.

What QC tests are performed on the TrailBio® Hematopoietic Progenitor Cells?

Cells are characterized by FACS for CD34, CD43, CD90 and CD235 expression, screened for sterility and mycoplasma, and functionally assessed using a colony-forming unit (CFU) assay.

Does the cryopreservation medium contain DMSO?

Yes, the cryopreservation medium does contain DMSO, which is commonly used to protect cells during the freezing and thawing process.

How quickly are cells shipped and received?

Online orders are shipped within 7 business days with overnight delivery. We do not ship on Fridays, Saturdays or Sundays.

Can I use these cells for clinical work?

No. Cells are for research use only, meaning no human, veterinary, therapeutic or diagnostic use. You may use the cells for *in vitro* applications as well as *in vivo* pre-clinical research in animals. For more questions, please refer to our Terms and Conditions | Trailhead Biosystems or contact us at support@trailbio.com.

What support do you provide post-purchase?

We offer technical support, troubleshooting guidance, and access to detailed protocols to ensure successful cell culturing and experimental reproducibility. Please contact support@trailbio.com with any further questions.