



TrailBio® Endothelial Cells FAQ

What are endothelial cells?

Endothelial cells line the interior of blood vessels and regulate key vascular functions. These functions include permeability, angiogenesis, and immune cell trafficking. They maintain vascular homeostasis and have a role in tissue repair. Dysfunction of endothelial cells is linked to diseases such as cardiovascular diseases, cancer, and inflammation. TrailBio® Endothelial Cells provide a consistent, physiologically relevant model to study vascular biology, drug responses, and disease mechanisms.

How are these cells generated?

Our TrailBio® Endothelial Cells are differentiated from human iPSCs using our proprietary directed differentiation protocol which closely mimics natural developmental cues to generate cells of high purity and functional attributes.

What applications are TrailBio® Endothelial Cells suitable for?

TrailBio® Endothelial Cells can be used across a wide range of applications, including modeling vascular dysfunction in diseases such as cardiovascular diseases, inflammation, and cancer. They are ideal for studying angiogenesis, endothelial barrier function, immune cell interactions, and evaluating vascular toxicity and drug responses. TrailBio® Endothelial Cells can also be used in co-culture systems, organ-on-a-chip models, and other *in vitro* tissue engineering platforms. Their role in regulating vascular integrity and responsiveness makes them valuable for researching endothelial biology and therapeutic modulation in both *in vitro* and *in vivo* settings.

What markers do these cells express?

TrailBio® Endothelial Cells express CD31 (PECAM1), VE-Cadherin (CD144), CD34, along with transcription factors ERG and ETS1 and functional markers including von Willebrand factor (vWF) and VEGFR2 (KDR). They do not express markers associated with non-endothelial lineages under standard culture conditions.

What culture conditions are recommended for TrailBio® Endothelial Cells?

Cells should be maintained at 37 °C with 5% CO₂ in a humidified incubator during culture. We recommend using the TrailBio® Endothelial Cells as described in the User Instructions, which uses Vasculife® VEGF Endothelial Medium Complete Kit (Lifeline Cell Technology, CAT: LL-0003).

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

TrailBio® Endothelial Cells do not require a differentiation period post-thaw to reach full functionality. Depending on the application, cells can be used immediately post-thaw or expanded in culture prior to downstream applications.

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

TrailBio® Endothelial cells are produced without genome modifications. The differentiation process closely mimics natural embryonic development using our proprietary HD-DoE® technology.

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. Please contact us at support@trailbio.com to plan your project or submit a form on [the bottom of this page](#). A member of our scientific team will follow up to discuss your project and next steps.

How are cells shipped?

Cryopreserved cells are shipped in vials under temperature-controlled conditions in the LN2 vapor phase.

What is the recommended storage and shelf life?

Cryopreserved cells should be stored in LN2 vapor phase (-135 °C to -195 °C) and not at -70 °C, as this storage temperature will result in loss of viability. Cells should be used within 6 months from the date of purchase. Upon receipt, promptly transfer cell vials from the LN2 dry shipper to LN2 storage using proper PPE, avoiding any thawing until cells are ready to be used.

What materials are required for thawing and culturing the cells?

The following reagents and media are required but not included: Vasculife® VEGF Endothelial Medium Complete Kit (Lifeline Cell Technology, CAT: LL-0003), VEGF-165 (Thermo Fisher Scientific, PeproTech, CAT: 100-20), SB431542 (MedChemExpress, CAT: HY-10431), and Accutase (Thermo Fisher Scientific, CAT: A11105501).

What QC tests are performed on the TrailBio® Endothelial Cells?

Cells are characterized by flow cytometry for absence of CD140b (pericyte marker) and for the presence of CD31 and CD144, and are tested for sterility and mycoplasma. Additionally, cells undergo post-thaw viability and cell count evaluation, as well as an Ac-LDL uptake functional 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.

How can I use these cells?

Cells are for research use only and are not intended for human, veterinary, therapeutic, or diagnostic applications. Materials may be used for internal, non-clinical research purposes in accordance with [Trailhead's Terms and Conditions](#). For additional questions, please contact 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.



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