Serum-free medium for endothelial cell culture and expansion

TrailBio® Endothelial Expansion Medium Kit

A fully serum-free medium designed for reliable endothelial cell expansion, supplied as a simple two-component system. Validated with primary human umbilical vein endothelial cells (HUVECs) and TrailBio® Endothelial Cells, the medium supports routine culture, expansion and downstream functional assays, while maintaining endothelial purity and function.

Reliable expansion
Maintains endothelial cell purity and function in both HUVECs and TrailBio® Endothelial Cells.

One medium for multiple cell types
Validated with HUVECs and TrailBio® Endothelial Cells, which are made from induced pluripotent stem cells (iPSCs).

Serum-free
Matches or exceeds the cell yield of leading serum-free and serum-containing media, without serum's batch-to-batch variability or lot testing.

Complete workflow option
Buy the medium alone, or with cells as the TrailBio® Endothelial Cells Kit.

Angiogenesis • Vascular Inflammation • Disease Modeling • Drug Screening



Simple workflow: thaw, mix and culture

Thaw the supplement and mix it with the basal medium to make complete medium. Use the same complete medium from post-thaw recovery to downstream functional assays.

1 Post-thaw recovery → 2 Routine expansion → 3 Functional assays

Serum-free HUVEC expansion, ≥95% pure

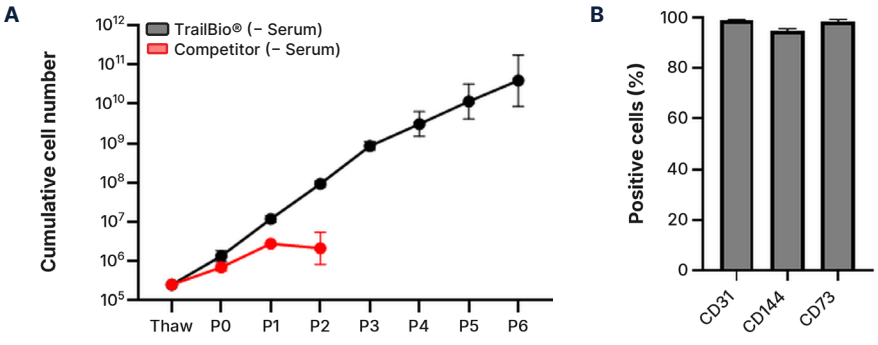


Figure 1 | Expansion | Identity. Primary HUVECs (human umbilical vein endothelial cells) sustain growth and endothelial purity during serum-free expansion in TrailBio® Endothelial Expansion Medium. **(A)** Cumulative cell number (total cells produced over time) from thaw to passage 6 (P6), showing sustained growth compared with a competitor serum-free medium. **(B)** Flow cytometry at passage 6: a high proportion of cells were positive for the general endothelial markers CD31 and CD144 and the venous-associated marker CD73.

HUVEC function retained after expansion: tube formation, Ac-LDL uptake and TNF-α response

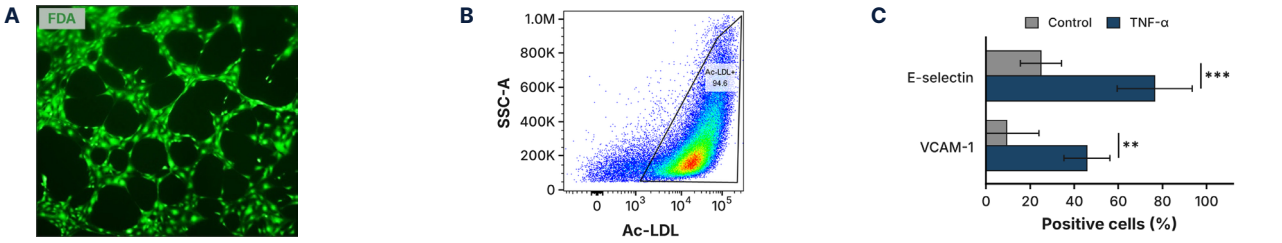


Figure 2 | Angiogenesis | Ac-LDL Uptake | Inflammation. HUVECs cultured in TrailBio® Endothelial Expansion Medium and tested at passage 6. **(A)** Capillary-like tube networks, a lab model of blood vessel formation (live cells stained with fluorescein diacetate, FDA). **(B)** Flow cytometry: 94.6% of cells took up Ac-LDL (acetylated low-density lipoprotein), consistent with scavenger receptor-mediated uptake, a hallmark of endothelial cell function. **(C)** TNF-α, an inflammatory signal (25 ng/mL for 24 hours), significantly increased the proportion of cells carrying the inflammation markers E-selectin and VCAM-1. Mean ± SD, n = 3.

TrailBio® Endothelial Expansion Medium shows similar results with iPSC-derived endothelial cells

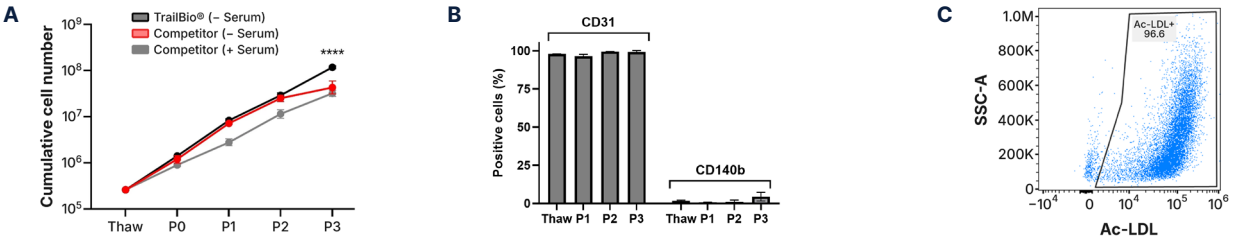


Figure 3 | Expansion | Identity | Ac-LDL Uptake. TrailBio® Endothelial Cells (iPSC-derived) cultured in TrailBio® Endothelial Expansion Medium from thaw to passage 3 (P3). **(A)** Cumulative cell number in TrailBio® Endothelial Expansion Medium, a competitor serum-free medium and a competitor serum-containing medium; TrailBio® Endothelial Expansion Medium gave significantly higher yield at passage 3. **(B)** At each passage the proportion of CD31+ cells (endothelial marker) stayed high and CD140b+ cells (mural cell marker) stayed low. **(C)** At passage 3, 96.6% of cells took up Ac-LDL.

Product details

Ordering

Catalog number
TB99709

Contains
Basal Medium F, 180 mL
Endothelial Expansion Supplement (4×), 60 mL

Usage
Research Use Only

Format and validation

Formula
Serum-free

Format
Kit of basal medium and 4× supplement

Validated cell types
HUVECs; TrailBio® Endothelial Cells

Handling

Storage
Basal medium: 2–10 °C
Supplement: −20 °C
Complete medium: 2–10 °C

Shipping
Basal medium on ice packs
Supplement on dry ice

Shelf life and stability
Use basal medium and supplement within 6 months of manufacture. Use complete medium within 14 days; store at 2–10 °C, protected from light.

PAIR IT WITH

TrailBio® Endothelial Cells

iPSC-derived TrailBio® Endothelial Cells are available separately or with the medium as the TrailBio® Endothelial Cells Kit.

POWERED BY HD-DoE®

Harnessing High-Dimensional Design-of-Experiments to accelerate development of consistent, scalable iPSC differentiation processes.

SCAN FOR PRODUCT DETAILS

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