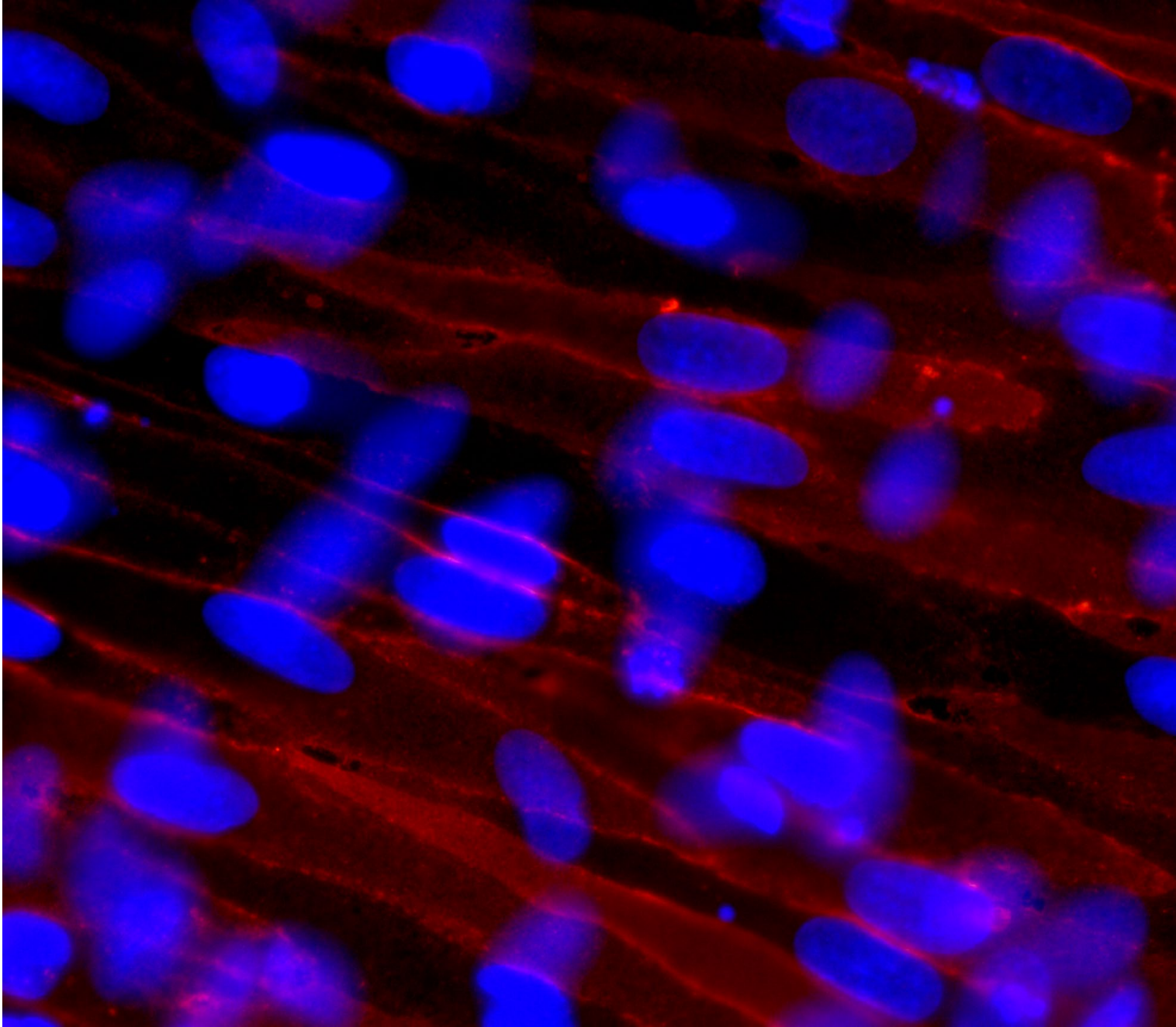


# NPC – Hepatic Non-Parenchymal Cells

## Building Blocks for Complex Liver Cultures



# Human Hepatic Cells

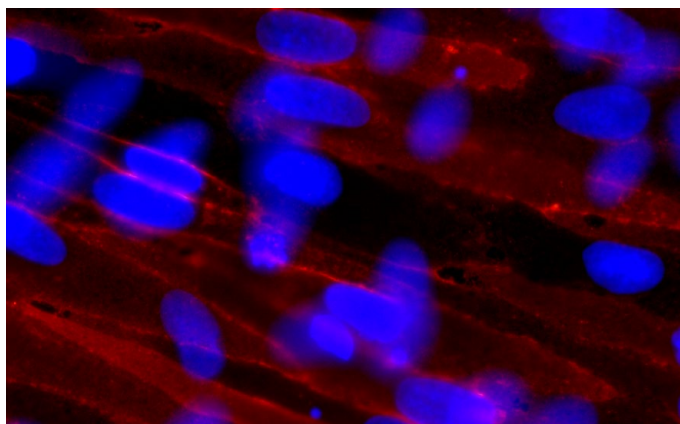
Lonza now offers human hepatic stellate cells, hepatic Kupffer cells, and liver-derived endothelial cells, complementing an extensive portfolio of primary hepatocytes. The additional liver cell types provide a complete building set supporting complex cell culture modeling. Applications include developing more physiologically relevant *in vitro* models for complex liver diseases and toxicity testing of new drugs and chemicals.

## Human Liver-derived Endothelial Cells

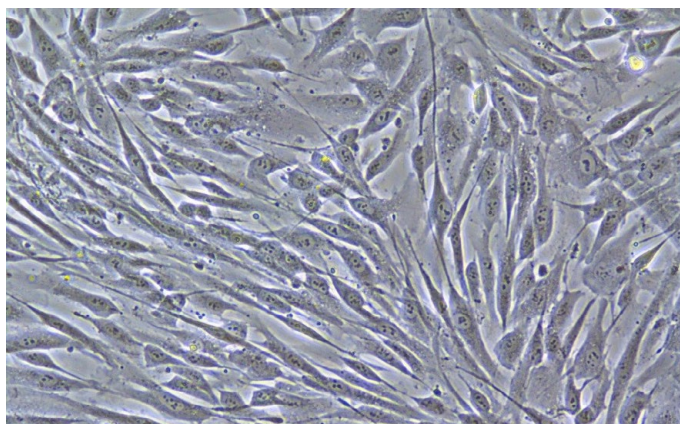
Endothelial cells are the primary barrier cells that line blood vessels and sinusoids of the liver. Human Liver-derived Endothelial Cells (HLECs), provided by Lonza, are isolated and enriched from liver tissue, then cryopreserved for use in a wide range of research models.

HLECs are characterized for markers of endothelial cells, including CD31, CD32b, vWF, and LYVE-1 as shown by flow cytometry and maintain appropriate endothelial morphology over limited serial passaging.

The recommended medium for HLECs is EGM™ 2 which is optimized for endothelial cell health and growth.



Human Liver Derived Endothelial Cells stained with CD31 antibodies (Red).



Phase contrast imaging of monolayer of HLECs in culture.

## Hepatic Kupffer Cells

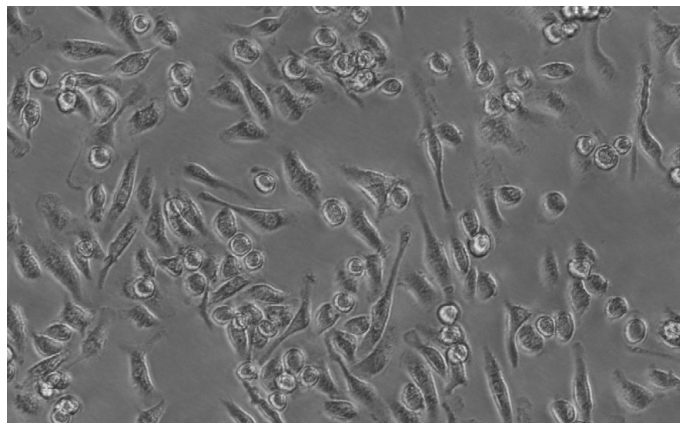
Kupffer cells are the resident macrophages in the liver and are part of the first line of defense against bacteria and toxins in the gut. Kupffer cells exhibit typical macrophage morphology and can be activated to produce inflammatory cytokines, growth factors and reactive oxygen species.

*In vivo*, prolonged activation of Kupffer cells are associated with many diseases of the liver including Non-alcoholic Fatty Liver Disease (NAFLD), Non-alcoholic Steato Hepatitis (NASH), and liver damage associated with certain bioactivated chemicals.

Kupffer cells are isolated and enriched from dissociated human liver tissue and then immediately cryopreserved without culturing.

Characterization of isolated Kupffer cells includes assessing morphology in plated format and evaluating functional responses to Lipopolysaccharide (LPS) stimulation.

Kupffer cells can be maintained in RPMI medium supplemented with 10% fetal bovine serum



Phase contrast image of Kupffer cells in culture

### Technical Information Provided with Each Lot of Kupffer Cells

LPS induction response	24 hours in culture	72 hours in culture
Morphology	■	
INF- $\gamma$	■	■
IL-10	■	■
IL-13	■	■
IL-1 $\beta$	■	■
IL-6	■	■
IL-8	■	■
TNF- $\alpha$	■	■

## Hepatic Stellate Cells

Stellate cells are a resident cell type of the liver primarily functioning to store retinoids. In response to liver damage, stellate cells rapidly lose the stored retinoids and differentiate into a proliferating fibroblast-like cell that begins depositing collagen matrix. This activity causes buildup of collagen in the liver eventually leading to cirrhosis.

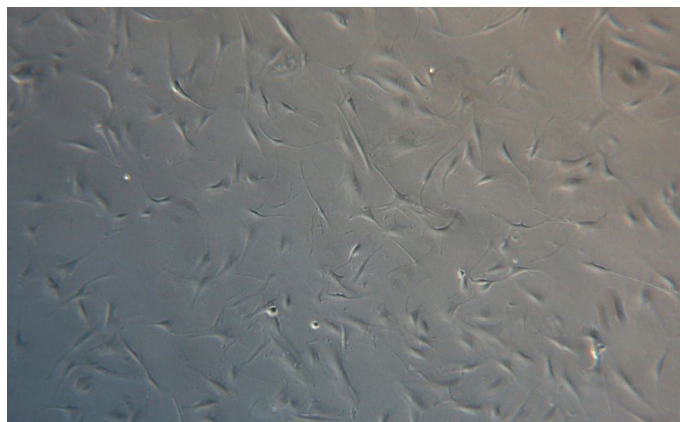
Stellate cells can be isolated from liver tissue, enriched, and placed into cell culture. When placed into culture, stellate cells begin to immediately differentiate into the activated state.

Isolated and enriched stellate cells are cryopreserved as passage 0 (having never been cultured) and at passage 1.

Human Stellate Growth Medium is available to support optimal culture health and growth characteristics of stellate cells.

Characterization performed:

- Post-thaw plating to observe characteristic stellate morphology.
- Flow cytometry using antibodies for Vinculin, Vimentin, and  $\alpha$ -SMA



Phase contrast imaging of monolayer of Stellate cells in culture.

**Format:** Cryopreserved

**Yield:** >0.1M cells, or >1M cells/vial

**Passage:** 0 or 1



## Ordering Information

Cat. No.	Product Name	Description	Size
<b>Hepatic Kupffer Cells</b>			
HLKC	Human Cryopreserved Kupffer Cells	Cryovial	≥ 500,000 cells/vial
<b>Hepatic Stellate Cells</b>			
HUCLS	Human Stellate Cells - Passage 1	Cryovial	≥ 100,000 cells/vial
HUCLS1	Human Stellate Cells - Passage 1	Cryovial	≥ 1,000,000 cells/vial
HUCLS1-P0	Human Stellate Cells - Passage 0	Cryovial	≥ 1,000,000 cells/vial
<b>Stellate Media</b>			
MCST250	Human Stellate Growth Media	Bottle	250 mL
<b>Human Liver Endothelial Cells</b>			
HLECP2	Human Liver Derived Endothelial Cells	Cryovial	≥ 800,000 cells
<b>Endothelial Media</b>			
CC-3156	EBM™ 2 Endothelial Cell Basal Medium-2		500 mL
CC-4176	EGM™ 2 Endothelial Cell Growth Medium-2 SingleQuots™ Supplements and Growth Factors	Frozen supplements	Kit

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For research use only. Not for use in diagnostic procedures.

Kupffer and HLEC cells are manufactured by Samsara Sciences, Inc., San Diego, CA and distributed by Lonza.

Phase contrast images for HLEC and Kupffer cells and CD31 staining image for HLEC cells courtesy of Samsara Sciences, Inc.

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