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CELLutions Biosystems Cell Lines

Human Cerebral Microvascular Endothelium

Mouse Cardiac Endothelium

Human Smooth Muscle

Bovine Trabecular Meshwork

Human Ovarian Cancer

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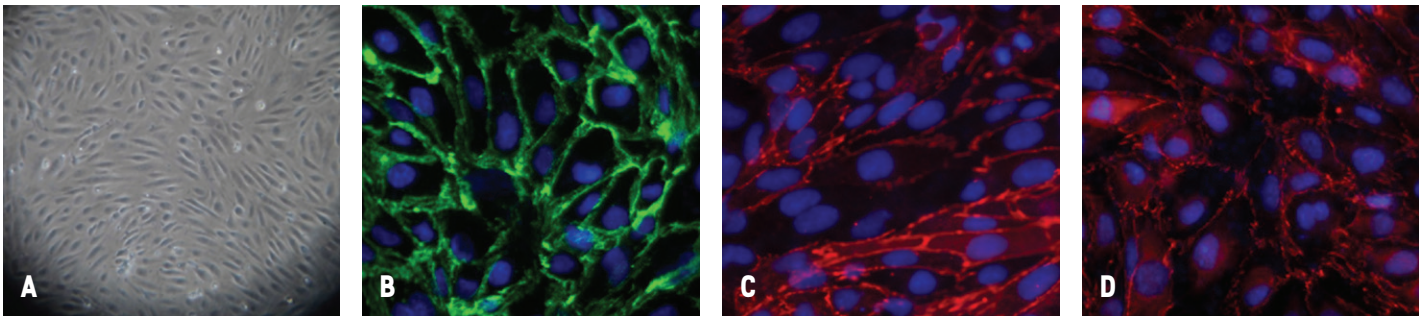
Human Cerebral Microvascular Endothelial Cell Line

hCMEC/D3 **Cat. # CLU512**

The Human Cerebral Microvascular Endothelial Cell Line **(hCMEC/D3)** was prepared from cerebral microvascular endothelial cells (CECs) by transduction with lentiviral vectors carrying the SV40 T antigen and human telomerase reverse transcriptase (hTERT). This cell line shows a spindle-shaped, elongated morphology similar to primary cultures of brain endothelial cells, and also exhibits contact inhibition at confluence when cultured on collagen type I or IV. In addition, this line expresses a variety of brain endothelial markers, adherence junction (AJ) and tight junction (TJ) proteins, as well as functional ABC transporters typical of brain epithelium.

hCMEC/D3 represents a stable, easily grown blood brain barrier (BBB) model cell line. It is ideal for drug uptake and active transport studies, as well as for understanding the brain endothelial response to various human pathogens and inflammatory stimuli.



Expression of endothelial and BBB markers by hCMEC/D3 cells. *Phase-contrast image of confluent hCMEC/D3 cells* **(A)**. *Confluent monolayers of hCMEC/D3 cells were stained for the endothelial junctional marker VE-Cadherin* **(B)** *and for the junction associated proteins Claudin-5* **(C)** *and ZO-1* **(D)** . *In images* **B–D**, *nuclei were counterstained blue.*

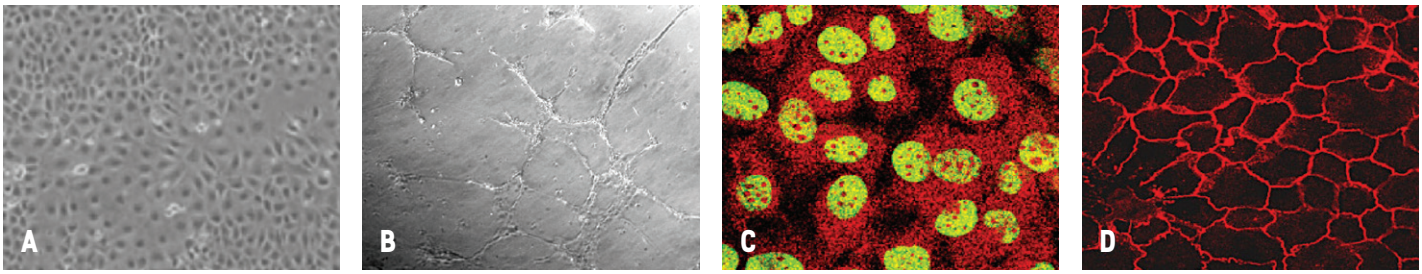
Mouse Cardiac Endothelial Cell Line

MCEC **Cat. # CLU510**

The mouse cardiac endothelial cell **(MCEC)** line was prepared from microvascular neonatal mouse cardiac endothelial cells by transfection with lentiviral vectors carrying SV40 T antigen and human telomerase. This cell line grows indefinitely, exhibits contact inhibition, displays normal endothelial characteristics and cellular markers, and possesses tight intercellular junctions.

The **MCEC** line is unusually receptive to both transient and stable transfection and thus provides an excellent in vitro model for evaluation of effects on endothelial physiology of specific genetic additions or deletions. It is very unusual for endothelial cells to grow indefinitely while maintaining stable normal endothelial characteristics, and furthermore to be easily transfectable at high efficiency with simple transfection techniques.

The **MCEC** line is ideal for studies of endothelial cell physiology, drug development, investigation into mechanisms of endothelial injury and protection therefrom, studies of vascular permeability, toxicity, cell-cell interactions, inflammation, wound healing, cancer therapy, and angiogenesis.

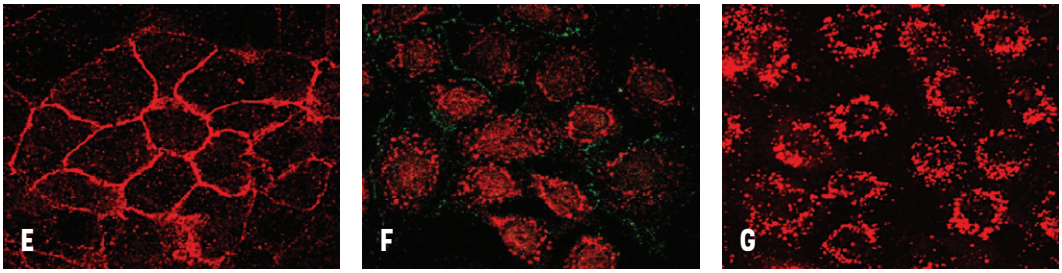


A. *MCEC monolayers on gelatin-coated plates.*

B. *Microtube formation of MCECs when cultured in matrigel.*

C. *SV40-T (green) and h-TERT (red) nuclear and cytoplasmic staining, respectively.*

D. *Platelet endothelial cell adhesion molecule-1 (PECAM-1).*



E. *VE-cadherin staining at intercellular junctions.*

F. *von Willebrand factor-associated antigen (red) in cytoplasm and ß-catenin (green) at intercellular junctions.*

G. *Intense cytoplasmic staining after incubation with 1,1'-dioctadecyl-3,3,3',3'; -tetramethyl-indocarbocyanine perchlorate-labeled low-density lipoprotein (DiI-Ac-LDL).*

Human Smooth Muscle Cell Lines

HITB5	**Cat. #CLU305**
HITC6	**Cat. #CLU306**
HITD5	**Cat. #CLU307**

Smooth Muscle cell lines (clones **HITB5**, **HITC6** and **HITD5**) were generated from primary cultures of human smooth muscle cells prepared from the internal thoracic artery. These cells assume a proliferative, motile phenotype when cultured in M199 media in the presence of 10% FBS. When serum deprived, the cells no longer proliferate but assume an elongated, spindle-shaped morphology with suppressed motility. The serum deprived cells are also seen to contract in vitro in response to the vasoactive hormones histamine and angiotensin II.

These cell lines may be valuable for clarifying our understanding of SMC phenotype switching and restructuring of the vessel wall. Additionally, these cell lines are ideal for studies involving angiogenesis and vasculogenesis, drug development, toxicity, cell-cell interactions, wound healing and cancer therapy.

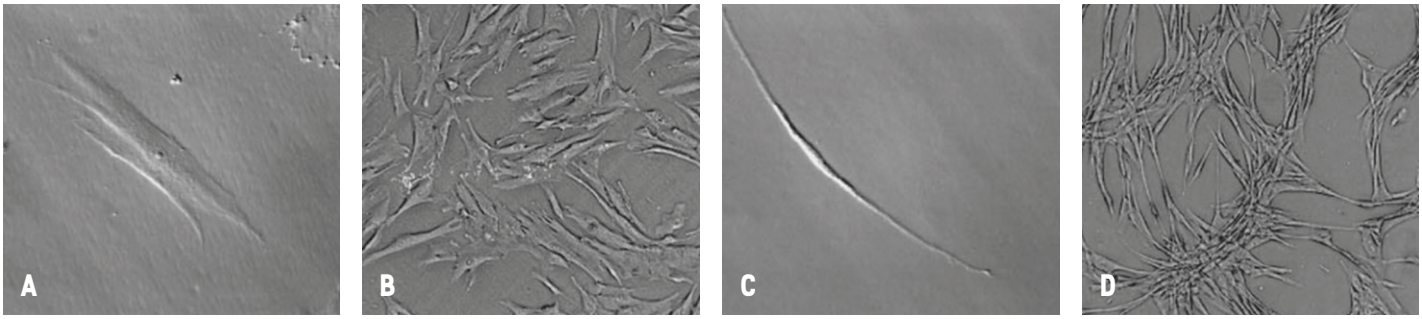


Figure 1. **Phase-contrast images of HITB5 smooth muscle cells cloned from adult internal thoracic artery. (A, B)** *HITB5 cells grown in M199 media with 10% FBS.* **(C, D)** *HITB5 cells 3 days after serum withdrawal showing an elongated and spindle-shaped morphology. (Shaohua Li et al (1999). Circulation Research. 85: 338-348.)*

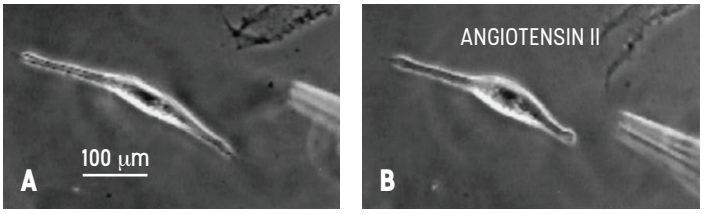


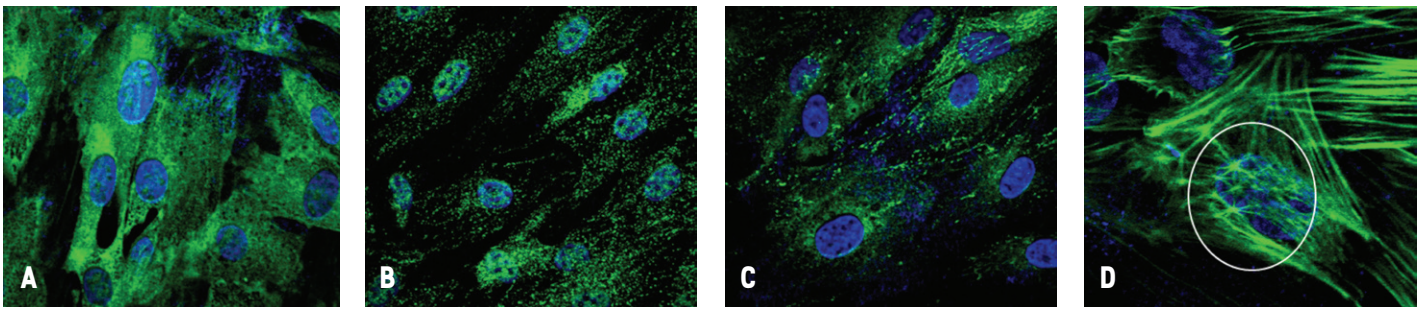
Figure 2. **Phase-contrast images of HITC6 smooth muscle cells** *before* **(A)** *and after* **(B)** *the application of Angiotensin II (1 mmol/L) showing contraction. (Shaohua Li et al (2001). Circulation Research. 89: 517-525.)*

Bovine Trabecular Meshwork Cell Line

BTM-28T	**Cat. # CLU511**

BTM-28T represents a spontaneously immortalized cell line derived from primary bovine trabecular meshwork (BTM) cell cultures isolated from tissue dissected from calf eyes. This cell line is seen to be morphologically similar to primary trabecular meshwork cells while proliferating at a much higher rate through a high number of passages. **BTM-28T** exhibits contact inhibition properties, enabling maintenance at 100% confluency under high glucose conditions. It is also seen to express the trabecular meshwork cell markers alpha-smooth muscle actin, laminin, and collagen IV. Furthermore, induction of cross-linked actin networks by dexamethasone is observed in **BTM-28T**, a behaviour typically observed in primary TM cells.

The **BTM-28T** cell line represents a unique and valuable research tool for ophthalmic and glaucoma researchers in academia and industry. It will help researchers to better understand the aqueous humour outflow pathway as related to the pathophysiology of glaucoma.



BTM-28T cells express trabecular meshwork cell markers *including α-SMA* **(A)**, *Collagen IV* **(B)** *and Laminin* **(C)**, *respectively (DAPI counterstained nuclei in blue).* **(D)** *Dexamethasone (DEX) induced cross-linked actin network (CLAN) formation in BTM-28T cells: Morphology of CLANs (circled area). Green (pseudocolor): phalloidin staining; blue: DAPI staining.*

Human Ovarian Cancer Cell Line

HEY **Cat. # CLU302**

The **HEY** human ovarian carcinoma cell line was derived from a human ovarian cancer xenograft (HX-62) originally grown from a peritoneal deposit of a patient with moderately differentiated papillary cystadenocarcinoma of the ovary. The cell line has demonstrated differential ability to grow in semisolid culture and as a xenograft in immunologically deprived CBA/CJ mice. The **HEY** cell line shows a degree of resistance to the alkylating agent cis-diamminedichloroplatinum (cis-platinum).

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