

## Human umbilical vein endothelial cells

hTERT immortalized

*HUVEC/TERT2*

Good experiments start with the right choices – hTERT immortalized cell lines retain the cell-type specific phenotype while constantly growing. No more lot-to-lot variability. No more growth arrest.

Just the perfect choice!

# Human umbilical vein endothelial cells (HUVEC/TERT2)

Vascular endothelial cells line the inner surface of blood vessels, thereby directly interacting with the blood stream. These cells show distinct functions in processes such as angiogenesis, vascular permeability, leukocyte trafficking or coagulation and fibrinolysis.

Human umbilical vein endothelial cells (HUVEC) are a valuable *in vitro* model that has contributed significantly to major insights in regulation of endothelial cell function and angiogenesis or the pathophysiology of atherosclerosis and plaque formation.

RNA-Seq data  
available at  
evercyte.com !

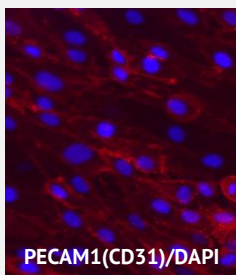
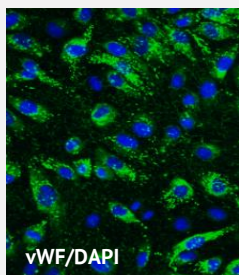
## In a nutshell

- Original tissue: **human umbilical vein**
- Ectopic expression of **hTERT** (catalytic subunit of human telomerase) in umbilical vein endothelial cells
- Expression of cell-type specific markers **von Willebrand factor (vWF)** and **PECAM-1 (CD31)**
- Formation of **neoangiogenic webs** upon cultivation on matrigel, angiogenic sprouting from spheroids
- Induction of **proliferation** upon **VEGF treatment**

## Cell-type specific characteristics

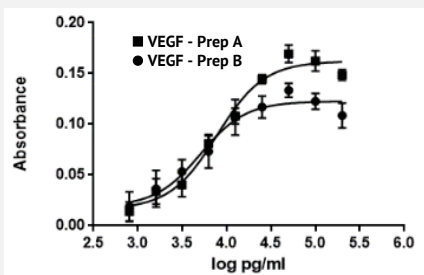
### Continuous growth *in vitro*

HUVEC/TERT2 cell line was continuously cultured for more than 70 population doublings (PDs) without showing signs of growth retardation or replicative senescence, whereas the parental cells senesced after having reached 33 PDs. The population doubling time of HUVEC/TERT2 cells is 28-36 hours.



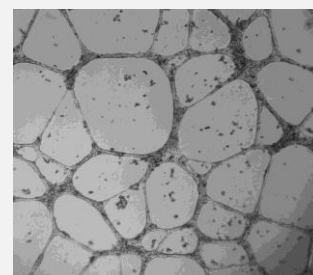
### Marker Expression

HUVEC/TERT2 cells homogenously express vWF and PECAM1 as revealed by immunofluorescence staining.



### VEGF response

HUVEC/TERT2 cells respond to different VEGF preparations in a concentration dependent manner.



### Neo-angiogenic properties

HUVEC/TERT2 form neo-angiogenic webs when inoculated onto matrigel matrix.

## Applications

- **Screening** for **pro- or anti-angiogenic factors**
- **Study of vascularization** in response to hypoxic conditions in tumors or ischemic tissues
- **Co-culture** with telomerized MSCs (**ASC/TERT1**) as enhanced *in vitro* model for studying **vascular biology**
- Assessment of interaction with **leukocytes and macrophages, study of inflammation**

## Adherence to GCCP-Standards!

Evercyte is committed to follow the principles of Good Cell Culture Practice (GCCP, Coecke et al., 2005). Therefore, our cell lines are:

- **established following ethical standards** (approved by IRB in accordance with the Declaration of Helsinki)
- **quality tested** (sterility, absence of specific human-pathogenic viruses, STR-profile, longevity)
- **characterized for expression of cell type specific markers and functions**

## References

Chang M. et al. 2005, Experimental Cell Research. PMID: 15964568

