

## Human umbilical vein endothelial cells

*HUVEC/TERT66*

Good experiments start with the right choices – telomerized 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/TERT66)

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.

Serum-free growth!!!

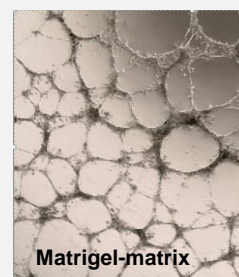
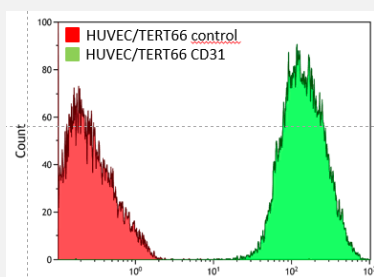
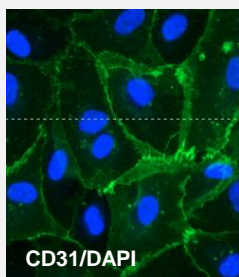
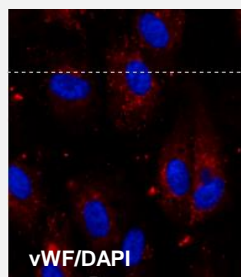
## HUVEC/TERT66 cell line – in a nutshell

- Original tissue: **human umbilical cord**
- Life span extension of isolated HUVECs by introduction of **hTERT** (catalytic subunit of human telomerase)
- Expression of cell-type specific markers **von Willebrand factor (vWF)** and **PECAM-1 (CD31)**
- Formation of **neoangiogenic webs** upon cultivation on matrigel matrix
- Growth under **serum-free cell culture conditions**, towards standardized culture conditions

## Cell-type specific characteristics

### Continuous growth *in vitro*

HUVEC/TERT66 cell line can be cultured continuously with a stable growth rate without showing signs of growth retardation or replicative senescence, whereas the parental cells senesced after having reached 23 PDs. The population doubling time of HUVEC/TERT66 cells is about 72 hours.



### Expression of cell type specific markers

HUVEC/TERT66 cells homogeneously express vWF and PECAM1 as revealed by immunofluorescence staining and a fluorescence microscopic evaluation as well as using flow cytometry.

### Neo-angiogenic properties

HUVEC/TERT66 cells show an endothelial morphology and formation of angiogenic webs on matrigel.

## 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  
Coecke S. et al. 2005, Altern Lab Anim. PMID: 16180980