

Human podocytes

hTERT immortalized

PODO/TERT256

Good experiments start with the right choices – hTERT 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 podocytes (PODO/TERT256)

Podocytes are terminally differentiated epithelial cells that cover the capillaries of the glomerulus at the basal membrane and are consequently involved in the filtration of blood plasma within the Bowmans' capsule. This is facilitated by the ability of podocytes to form interdigitating processes around the glomerular capillaries that form a mesh-like barrier. Podocytes are particularly sensitive to damage and toxic substances and depletion of functional cells eventually leads to kidney diseases.

In a nutshell

- Original tissue: **human kidney cortex**
- Ectopic expression of hTERT (catalytic subunit of telomerase) in **podocytes**
- **Constant growth rate** and ability to grow **without limitations**
- Characterized by typical **podocyte morphology**, **expression of podocyte specific markers**
- Concentration dependent **response to podocyte specific toxicant puromycin aminonucleoside (PAN)**
- Ability to form a **glomerular capillary wall** when co-cultured with endothelial cells

RNA-Seq data
coming soon!

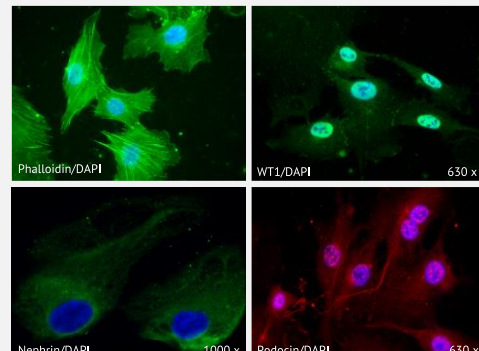
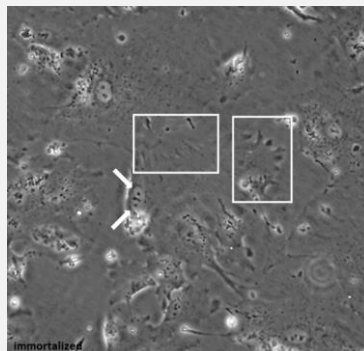
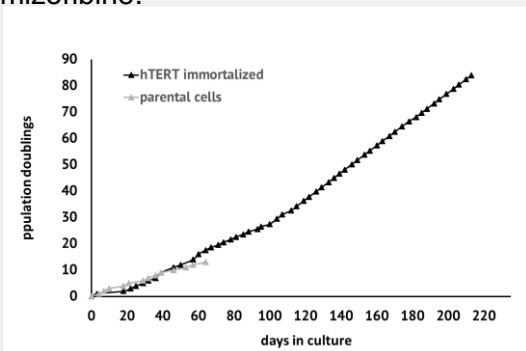
Cell type specific characteristics

Continuous growth *in vitro*, morphology and marker expression

PODO/TERT256 cells have been grown for a minimum of 60 population doublings (PDs) without showing signs of growth retardation, whereas the parental cells entered senescence after having reached a maximum of 13 PDs. The population doubling time of PODO/TERT256 cells is about 50 hours. Moreover, the cells show the typical flattened phenotype with foot-like processes and express typical podocyte marker proteins like nephrin, podocin or WT-1.

Response to podocyte toxicants and formation of a glomerular barrier

PODO/TERT256 cells are sensitive to PAN treatment when differentiated in 2D culture. Moreover, the cells can be cultured as 3D co-culture with microvascular endothelial cells (HDMVEC/TERT164) on transwells. These co-cultures retain albumin as intact barrier and show leakage upon PAN treatment which can be partly rescued by mizoribine.



Applications

- Study of **barrier function** in the kidney
- Assessment of **in vitro nephrotoxicity**
- Phenotypic and orthogonal **drug screening**
- **Modeling of glomerulopathies**
- Development of **bioartificial kidney devices**



Adherence to GCCP-Standards!

Evercyte is committed to follow the principles of Good Cell Culture Practice (GCCCP, 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**