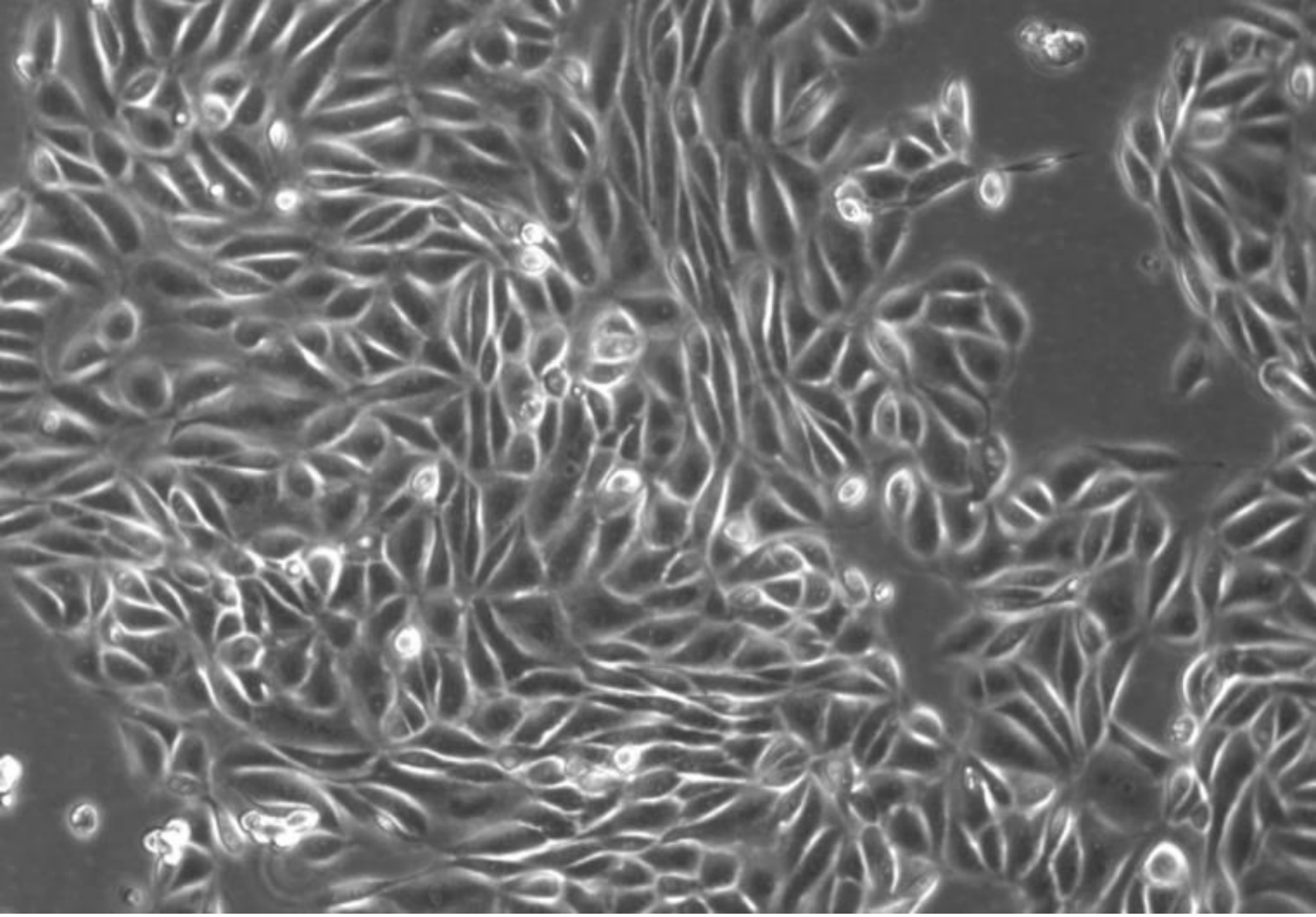


Human renal proximal tubular epithelial cells

hTERT immortalized

RPTEC/TERT1

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 renal proximal tubular epithelial cells (RPTEC/TERT1)

Renal proximal tubular epithelial cells are involved in resorption of essential metabolites, water, protein and advanced glycation end-products after glomerular filtration. Thus, these cells play an essential role in various kidney diseases and are especially sensitive to toxic substances.

In a nutshell

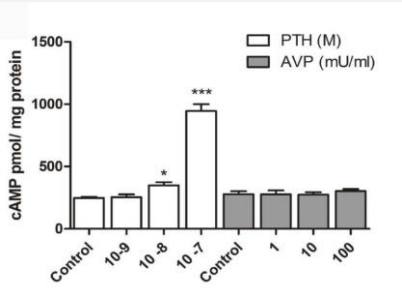
- Original tissue: **human kidney cortex**
- Ectopic expression of **hTERT** (catalytic subunit of human telomerase) in **renal proximal tubular epithelial cells** (Wieser et al. 2008)
- Characterized by typical **cobblestone morphology** and **gamma-glutamyl transferase (GGT)** activity as well as **transporter functions**
- Expression of cell type specific markers **Aminopeptidase N** (**CD13) and E-Cadherin**
- Formation of **domes** and **tight junctions** upon cultivation to high cell density
- **Response** to **parathyroid hormone (PTH)** but **not arginine vasopressin (AVP)** treatment

RNA-Seq data available at evercyte.com !

Cell type specific characteristics

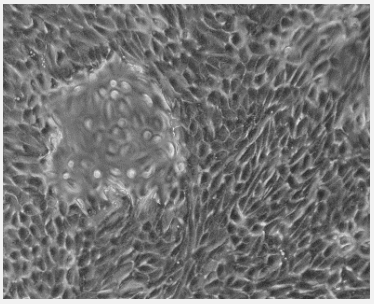
Continuous growth *in vitro*

RPTEC/TERT1 cells have been grown for a minimum of 90 population doublings (PDs) without showing signs of growth retardation, whereas the parental cells entered senescence after having reached a maximum of 24 PDs. The population doubling time of RPTEC/TERT1 cells is 72 – 96 hours.



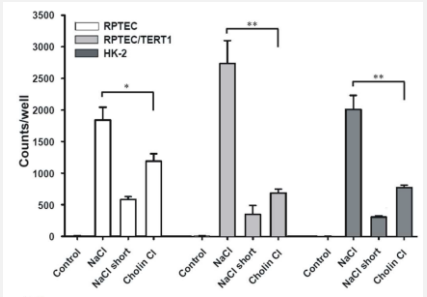
Enzymes, hormone response

RPTEC/TERT1 cells are characterized by gamma glutamyl transferase activity and respond to parathyroid hormone but not to arginine vasopressin by increase of the intracellular cAMP level.



Domes, tight junctions

When confluent, RPTEC/TERT1 cells form domes indicating active water transport and show a continuous belt of ZO1 and E-Cadherin together with TEER levels of normal cells.



Transport functions

RPTEC/TERT1 cells express sodium-dependent phosphate transporters as well as several xenobiotic transporters (Wieser et al, 2008, Aschauer et al. 2013 and 2015; Homan et al, 2016)

Applications

- Study of **transport function** in the kidney
- Assessment of **in vitro nephrotoxicity**
- Phenotypic and orthogonal **drug screening**
- **Detection** and **prediction of renal injury** (i.e. diabetic nephropathy, CKD)
- Development of **bioartificial kidney devices**
- Construction of **lab-on-a-chip devices**

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 spe pathogenic viruses, STR-profile, longevity)
- **characterized for expression of cell type specific markers and functions**

References

Wieser et al, 2008, AJP renal ◆ Ellis et al, 2011, MolBioSyst ◆ Radford et al, 2012, AJP renal ◆ Wilmes et al, 2013, J Proteomics ◆ Aschauer et al, 2013, MCB ◆ Jennings et al, 2014, Arch Toxicol ◆ Aschauer et al, 2015, Toxicol In Vitro ◆ Slyne et al, 2015, Nephrol Dial Transplant ◆ Homan et al, 2016, Sci Rep ◆

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