

Human bronchial epithelial cells

hTERT and cdk4 immortalized

HBEC3-KT

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 bronchial epithelial cells (HBEC3-KT)

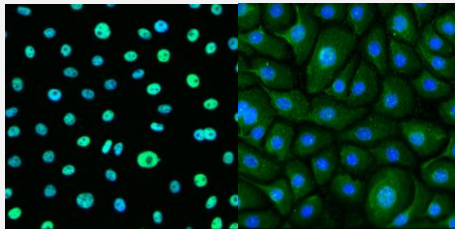
The lung is covered by the bronchial epithelium that forms an essential interface between the external environment and the internal milieu. Thereby, the bronchial epithelial cell barrier exerts an important role in the defense against inhaled insults allowing the maintenance of normal airway function. Based on functional and structural criteria bronchial epithelial cells can be classified into three categories: basal, ciliated and secretory cells. These cells are differentiated from multipotent progenitor cells which enable tissue maintenance and homeostasis.

Isogenic lung cancer models available upon request!

In a nutshell

- Developed in the Shay/Wright lab at UT Southwestern (Ramirez et al., 2004)
- Original tissue: **human central lung bronchiole – multipotent progenitor cells**
- Ectopic expression of **hTERT** (catalytic subunit of telomerase) and **cdk-4** (cyclin dependent kinase 4)
- Characterized by expression of typical lung epithelial cell markers such as **CCSP** and **p63**
- Capacity to differentiate towards **various specialized lung cells**

Cell-type specific characteristics

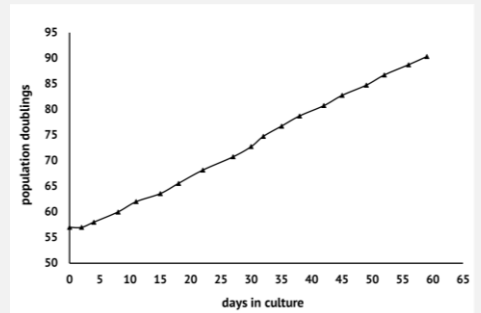
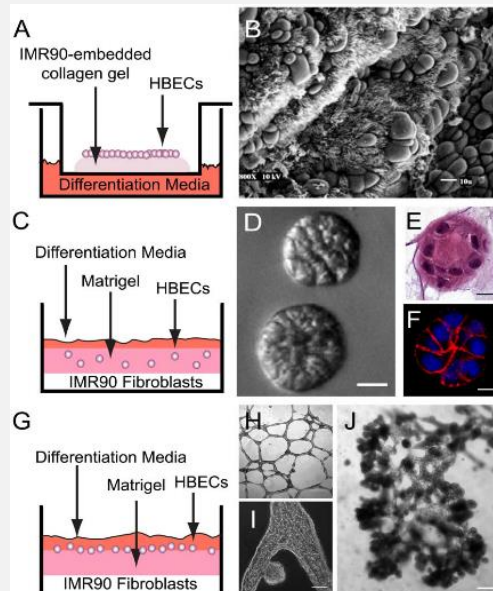


Marker expression

HBEC3-KT cells homogenously express p63 (left) and CCSP (right).

Differentiation capacity

Under different cultivation conditions (A, C, G), HBEC3-KT differentiate towards ciliated and/or goblet cells (B), form cyst-like structures (D, E, F) or tubular systems from which bud structures emerge over time (H, I, J) (Delgado et al., 2011).



Continuous growth *in vitro*

HBEC3-KT cell line was continuously cultured for more than 100 population doublings with a constant growth rate and no signs of growth retardation or replicative senescence. In contrast, normal bronchial epithelial cells can be grown for a maximum of 9 to 16 PDs *in vitro*.

Applications

- Elucidation of epithelial and barrier function in the bronchial epithelium
- Study of immune and inflammation responses, mechanical and oxidative stress
- Study of disease relevant mechanisms in the lung (i.e. viral infection, COPD, tumour development)
- Drug discovery and development



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

Ramirez RD et al. Cancer Res, 2004. PMID: 15604268 ♦ Delgado O et al. Plos ONE, 2011. PMID: 21760947 ♦ Coecke S et al. Altern Lab Anim, 2005. PMID: 16180980

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