

Human adipose derived mesenchymal stem cells

ASC/TERT1

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 adipose derived mesenchymal stem cells (ASC/TERT1)

Mesenchymal stem cells are multipotent progenitor cells found in various tissues and body fluids of the human organism, where they play essential roles in tissue homeostasis and repair.

The cells are characterized by their self-renewal and multipotent differentiation capacity. However, there are also indications that the cells show significant plasticity and are able to develop also into non-mesenchymal lineages. Thus, MSCs show a high potential in regenerative medicine and cell therapy.

Serum-free growth!!!

ASC/TERT1 cell line – in a nutshell

- Original tissue: **human adipose tissue**
- Life span extension of isolated MSCs by introduction of **hTERT** (catalytic subunit of human telomerase)
- Expression of cell-type specific markers **CD73, CD90, CD105**
- Differentiation towards **osteoblasts, adipocytes and chondrocytes**
- Growth under **serum-free cell culture conditions** possible, towards standardized culture conditions

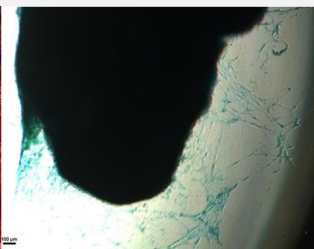
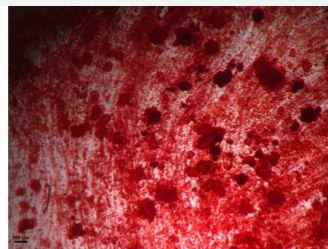
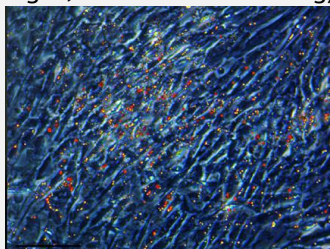
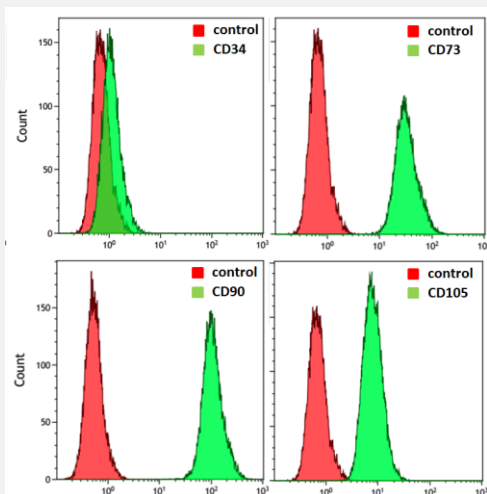
Cell-type specific characteristics

Continuous growth *in vitro*

ASC/TERT1 cell line can be cultured continuously with a stable growth rate without showing signs of growth retardation or replicative senescence for a minimum of 100 population doublings. The population doubling time of ASC/TERT1 cells is about 36-48 hours.

Expression of marker proteins and differentiation potential

ASC/TERT1 cells homogenously express typical mesenchymal stem cell markers such as CD73, CD90 and CD105, whereas less than 5% of the cells express the hematopoietic stem cell marker CD34 (left picture). Additionally, the cells can be differentiated towards adipocytes (lower, left, oil red O staining), osteoblasts (lower, middle, Alizarin Red S staining) and chondrocytes (lower, right, alcian blue staining).



Applications

- Study of differentiation processes and inflammation
- Co-culture with telomerized endothelial cells (HUVEC/TERT66) as enhanced *in vitro* model for studying vascular biology
- Development of novel treatment strategies /cell-based therapies and extracellular vesicles

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

Wolbank S. et al. 2009, Tissue Eng Part A 2009, Jul 15(7):1843-54. PMID: 19125642
Coecke S. et al. 2005, Altern Lab Anim. PMID: 16180980

