

Human Wharton's Jelly derived mesenchymal stem cells WJ-MSC/TERT273

Novel production hosts for extracellular vesicles – human 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 Wharton's Jelly derived MSCs (WJ-MSC/TERT273)

Mesenchymal stem cells play essential roles in tissue homeostasis and repair, whereby evidence has accumulated that these effects are at least in part mediated by secreted extracellular vesicles (EVs). To boost the development of EV-based therapeutics continuously growing, standardizable production hosts for EVs are of ever increasing importance. Evercyte offers telomerized cell systems that fulfil all requirements for production of EVs also for clinical application.

In a nutshell

- Original tissue: **human Wharton's jelly (WJ)**
- Non-viral expression of **hTERT** (catalytic subunit of telomerase) in **mesenchymal stem cells**
- Establishment and growth under **xeno-free conditions, complete documentation** of any manipulation step
- **Quality control tested** (freedom from human pathogenic viruses, bacterial-, fungal contaminations, authentic)
- Expression of cell-type specific markers such as **CD73, CD90, CD105**
- Differentiation potential towards **adipocytes, chondrocytes, osteoblasts**
- Continuous production (3-4 months) of EVs in a **hollow fiber bioreactor**
- Secretion of stable **EVs with neo-angiogenic and anti-inflammatory activity**

Telomerized
MSCs from other
sources coming
soon!

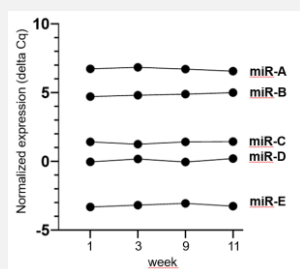
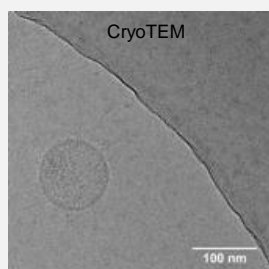
Cell-type specific characteristics

Continuous growth *in vitro*

WJ-MSC/TERT273 cells are characterized by typical markers and functions of mesenchymal stem cells and can be grown continuously for more than 50 population doublings without showing signs of growth retardation or replicative senescence. The population doubling time of WJ-MSC/TERT273 cells is about 40-44 hours.

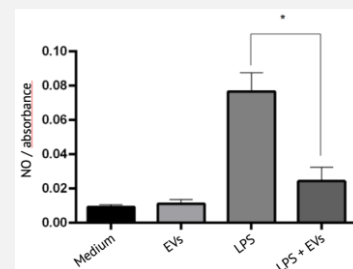
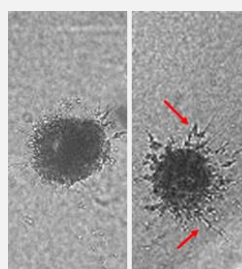
Characteristics of WJ-MSC/TERT273 - EVs

EVs show the typical lipid double layer membrane structure (cryoTEM) and express CD81 and syntenin. The miRNA cargo is stable throughout a three months production process (shown for 5 miRNAs).



Potency of WJ-MSC/TERT273 - EVs

In contrast to untreated endothelial spheroids EVs derived from WJ-MSC/TERT273 induce sprout formation similar to VEGF. Moreover, NO production is reduced in LPS treated macrophage cells.



Applications

- Production of EVs – from lab to industry scale
- Study biogenesis of EVs
- Use of MSC derived EVs in wound healing
- Immunomodulation by MSC derived EVs
- Analysis of EV cargo and targeting
- Generation of recombinant EVs for e.g. drug targeting

Evercyte's EV toolbox!

- Telomerized cells from different tissues and organs for EV production (differentiated cells or stem cells)
- Customer-tailored establishment of EV producers
- EVs from various telomerized cells; select from our broad product catalogue
- Testing of EV preparations, including size, structure, protein/lipid content and potency!
- Generation of recombinant EVs

Evercyte follows all ethical and legal requirements for the use of human material for the establishment of novel cell factories for production of extracellular vesicles.

