QUALITY CONTROL FOR PERINATAL STEM CELLS' ISOLATION PROTOCOL

Fetal annexes such as the placenta are an interesting source of stem cells. These progenitor cells harbor multipotency characteristics between fetal and adult stem cells.

Amniotic epithelial cells (AECs) are derived by enzymatic digestion of the amniotic membrane using the proteolytic enzyme Trypsin.
Cell recovery is a critical step for isolation efficiency. Many variables are implied, such as type of enzyme, incubation time, tissue preservation and patients inter-differences.

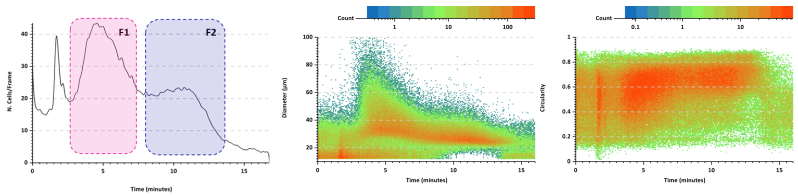
We set up a protocol for the **prediction of the isolation procedure of AECs using Celector® as a quality control instrument and sorter of the ideal population**.

1 What it does

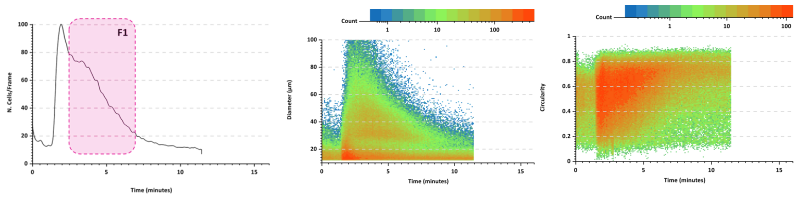
Celector® profile is able to discriminate effect on
·**cell detachment** from membrane
·**cell viability** of detached cells

PREDICTIVE DATA ON QUALITY AND QUANTITY OF BEST STEM CELLS
AREA UNDER THE CURVE (% AUC) predicts cell distribution between sub-populations.

SUCCESSFUL ISOLATION
Sorting of two sub-populations:
F1 cells do not adhere.
F2 cells were the only ones alive, adherent, and proliferative.



UNSUCCESSFUL ISOLATION
Sorting of two sub-populations:
F1 cells do not adhere.
F2 cells were few, poorly adherent, and reduced proliferation.



Celector® Optics and **StemSel Analyzer** software allowed **in-depth analysis** of the population composition of **cells' physical characteristics.**

2 Applications

Fast & easy definition of successful protocol (20 min vs 1 week), avoiding waste of time, material, and labor
Time-dependent morphometric analysis for new cell population characterization
Enrichment of the **most vital cell component** in expanded ADSCs;
Depletion of senescent cells that can negatively influence cell culture and cell therapy approaches
Quality control (QC) of expanded stem cell culture;
QC system **relevant** in stem cell platforms **for high expansion systems** (cell bank).

stemsel.it | info@stemsel.it