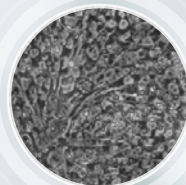




DEF-CS™

Feeder free and defined culture system for efficient expansion and scale up of human pluripotent stem cells



www.cellartis.com

DEF-CS™ is an easy-to-use and robust culture system for the efficient expansion and scale-up of human pluripotent stem cells in a feeder-free and defined environment. The highly reproducible nature of the system coupled with the stable high growth rate makes it ideal for the mass production of cells. The fact that cells are maintained in an undifferentiated state with virtually no background differentiation means that no cell selection is required. Enzymatic passaging as single cells also makes it perfect for single cell applications including high-throughput screening, transfection and seeding onto scaffolds.

DEF-CS™ is a complete culture system including basal medium as well as additives and coating compound. DEF-CS™ is suitable for human embryonic stem cells as well as human induced pluripotent stem cells. A number of human embryonic stem cells cultured in DEF-CS™ are also available for purchase.

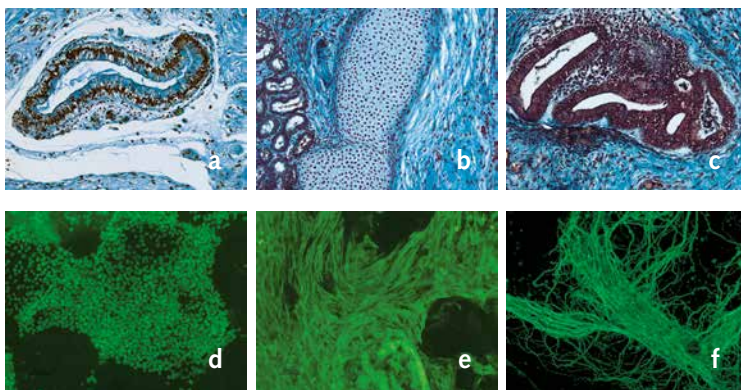


Figure 1: Pluripotency analysis of hESC line SA181 cultured for 26 passages in DEF-CS™. Pluripotency in vivo demonstrated by teratomas showing secretory epithelial layer and connective tissue (a), chondrocytes and connective tissue (b) and mature and immature neural tissue (c). Pluripotency in vitro demonstrated by differentiation via EB formation showing cells stained positive for endodermal marker FOXA2 (d), mesodermal marker ASMA (e) and ectodermal marker b-III-tubulin (f).

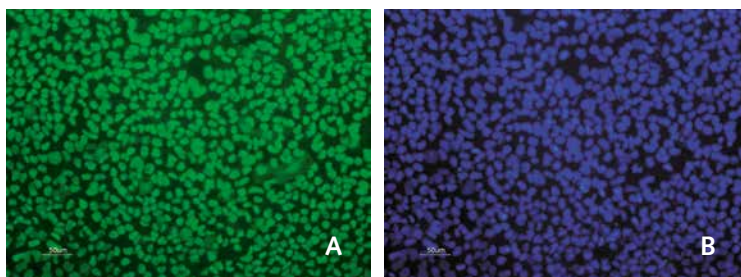


Figure 2: Human pluripotent stem cells remain undifferentiated when cultured in DEF-CS™ over time. Human iPS cells cultured for 23 passages in DEF-CS™ characterised by Oct-4 staining in green (A), nuclei stained in blue (B).



Figure 3: Human pluripotent stem cells cultured long-term in DEF-CS™ retain normal karyotype. Chromosomal analysis of hESC line SA181 cultured for 25 passages in DEF-CS™.

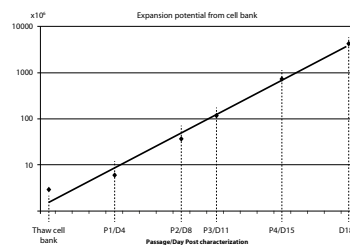


Figure 4: Expansion potential from characterised working cell bank. The system can produce in the region of 2×10^6 hES cells within 4 passages (18-20 days) from a thawed cell bank vial ($2-2.5 \times 10^6$ cells).

Front page large image: Morphology of human pluripotent stem cells cultured in DEF-CS™.

ADVANTAGES

- Single cell passaging
- Single cell applications
- Efficient expansion
- Robust system and high reproducibility
- Useful for both hES and hiPS cells
- Straightforward culture system, no cell selection is needed
- Virtually no background differentiation
- Allows controlled material for subsequent differentiation in any format

APPLICATIONS

- Scale up and mass production of human pluripotent stem cells
- Bioreactor
- Transfection and reprogramming
- Single cell seeding for highthroughput screening
- Seeding in scaffolds (Tissue engineering, maturation of human pluripotent stem cells towards tissue like structures)

PRODUCT	CATALOGUE #	DESCRIPTION
DEF-CS™	DEF-501-500 Kit	Complete kit for culturing human pluripotent stem cells, including 500 ml basal medium, additives and coating compound
DEF-hESC™	DEF-SA121-VIAL DEF-SA167-VIAL DEF-SA181-VIAL DEF-SA461-VIAL 2.5M cells/vial	Human embryonic stem cells from source cell line SA121, SA167, SA181 and SA461 respectively, cultured and frozen in DEF-CS™
DEF-hiPSC™	DEF-hiPSC™ P11025 DEF-hiPSC™ P11032 DEF-hiPSC™ ChiPSC4 DEF-hiPSC™ ChiPSC18 XXM cells/vial	Human embryonic stem cells from source cell line SA121, SA167, SA181 and SA461 respectively, cultured and frozen in DEF-CS™

Boreström C et al. 2014. Footprint-free human induced pluripotent stem cells from articular cartilage with redifferentiation capacity: A first step toward a clinical-grade cell source. *Stem Cells Transl. Med.* (2014) 3, 433-447.
Norman K et al. 2013. Distinct gene expression signatures in human embryonic stem cells differentiated towards definitive endoderm at single-cell level. *Methods.* (2013) 59(1), 59-70

ORDERING INFORMATION