Data Sheet

SCp2 Mouse Mammary Epithelial Cell Line

Cancer Cell Line

SCC458

Pack Size: ≥1x10^6 viable cells/vial

Store in Liquid Nitrogen

FOR RESEARCH USE ONLY

Not for use in diagnostic procedures. Not for human or animal consumption.

Background

Mammary epithelial cell differentiation and reorganization occurs throughout development and in the adult organ during pregnancy and menopause. During these periods in the adult life there is an increased risk for breast cancer, which is the most common cancer in women. Breast cancer can be treated when detected at early stages but is considered incurable in advance stages with metastasis. The extracellular matrix (ECM) in mammary tissue influences growth and differentiation during development, differentiation, and carcinogenesis.[1] Epithelial cells sense ECM modifications through transmembrane receptors like integrins that can influence the expression of malignant phenotypes exhibiting increased proliferation and loss of contact inhibition growth.[1]

The SCp2 cell line was isolated from the heterogenous CID9 cells by limiting dilution cloning.[2] CID9 cells were isolated from a mid-pregnancy mouse mammary gland. SCp2 cells require exogenously added ECM and lactogenic hormones to express b-casein, under these conditions the cells arrest growth, aggregate, and form alveolar structures that express high levels of milk proteins.[2] SCp2 cells are useful for the study of normal and abnormal mammary epithelial cell phenotypes because their growth and differentiation can be controlled in culture. Activated mutants of M-Ras have been introduced in normal SCp2 cells to study transformation, invasion, and tumor formation *in vivo*.[3]

Source

SCp2 is a murine mammary epithelial cell line that originated from limiting dilution cloning of heterogenous CID9 cells.

Short Tandem Repeat

M18-3: 17, 18	M1-1: 13, 14	M11-2: 18	D8S1106: ND
M4-2: 21.3	M3-2: 14	M17-2: 16, 17	D4S2408: ND
M6-7: 12	M8-1: 13	M12-1: 16	
M19-2: 13	M2-1: 16	M5-5: 14	
M1-2: 17	M15-3: 22.3	MX-1: 24	
M7-1: 26.2	M6-4: 19	M13-1: 16.2	

Spectral Properties

Cancer cell lines are inherently genetically unstable. Instability may arise in the form of loss of heterozygosity of alleles at one or more genetic sites with increased passages.

Quality Control Testing

- Each vial contains ≥ 1×10^6 viable cells.
- Cells are tested negative for infectious diseases by a Mouse Essential CLEAR panel by Charles River Animal Diagnostic Services.
- Cells are verified to be of mouse origin and negative for interspecies contamination from human, rat, Chinese hamster, Golden Syrian hamster, and Non-human Primate (NHP) as assessed by a Contamination Clear panel by Charles River Animal Diagnostic Services.
- Cells are negative for mycoplasma contamination.

Storage and Handling

SCp2 cells should be stored in liquid nitrogen. The cells can be cultured for at least 10 passages after initial thawing without significantly affecting functionality.

Representative Data

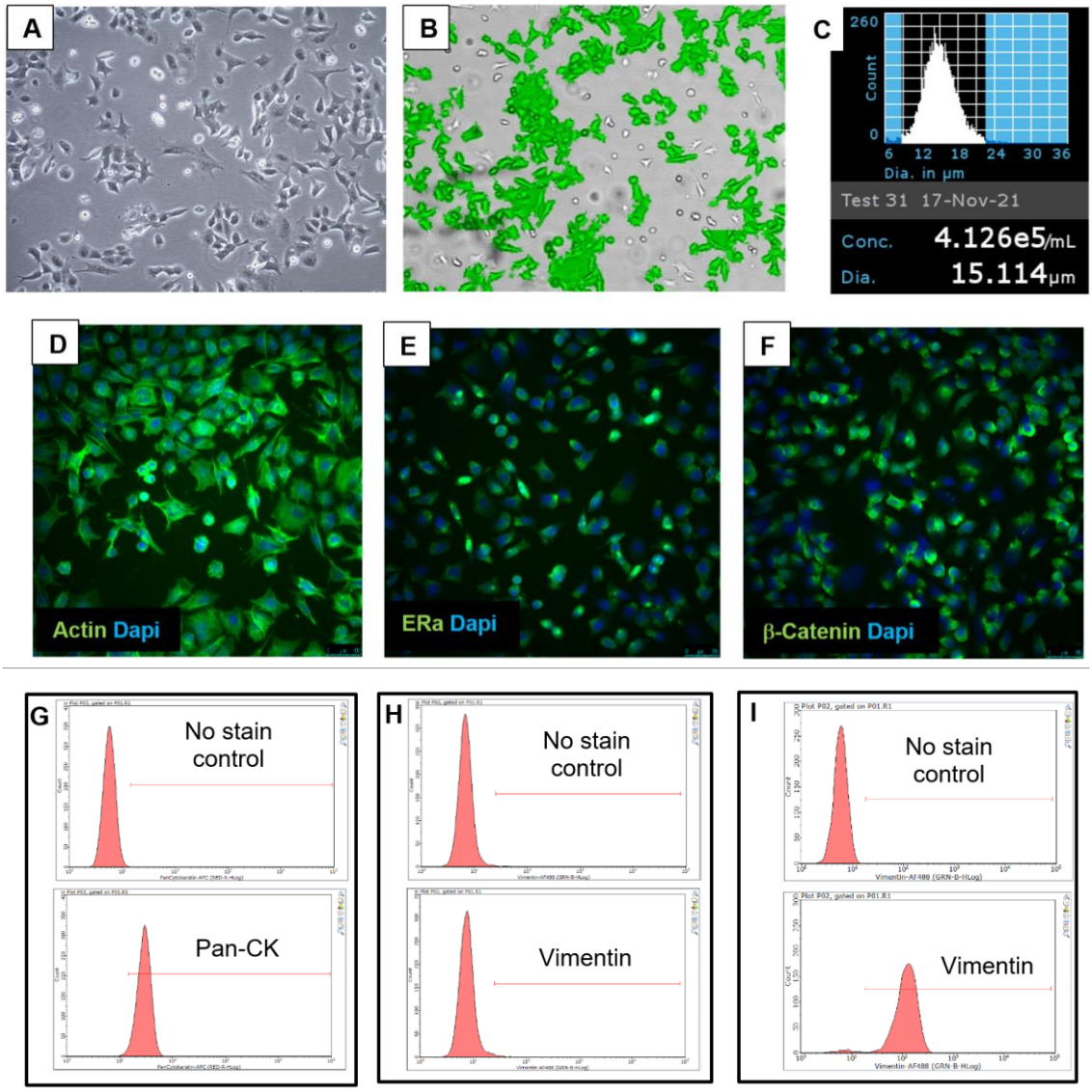

Figure 1. Brightfield image of SCp2 cells one day after thaw in a T75 flask (**A**). Cell confluency (30%) was assessed throughout the culture using the Millicell® Digital Cell Imager (**B**, Cat. No. MDCI 10000). Cell counting was performed using Scepter™ 3.0 handheld automated cell counter using 60 mm sensors (**C**, PHCC360KIT). SCp2 cells express actin (**D**, Cat. No. 49409), estrogen receptor alpha (ERa) (**E**, Cat. No. 06-935) and b-catenin (**F**, Cat. No. ABE208). Majority of SCp2 cells (98.3%) express the epithelial marker, pan-cytokeratin (**G**, Cat. No. SAB4700667) and are negative for fibroblastic marker, vimentin (**H**, R&D Systems® IC2105G). As a control, human foreskin fibroblasts are positive for vimentin (I).

Protocols

Thawing Cells

1. Do not thaw the cells until the recommended medium is on hand. Cells can grow on normal tissue cultureware surfaces without any additional coating. Cells are thawed and expanded in SCp2 Expansion Medium comprised of DMEM/F12 medium (Cat. No. D8062) with 5 µg/mL insulin (Cat. No. I9278) and 2% FBS (Cat. No. ES-009-B).
2. Remove the vial of frozen SCp2 cells from liquid nitrogen and incubate in a 37 °C water bath. Closely monitor until the cells are completely thawed. Maximum cell viability is dependent on the rapid and complete thawing of frozen cells.

   IMPORTANT: Do not vortex the cells.
3. As soon as the cells are completely thawed, disinfect the outside of the vial with 70% ethanol. Proceed immediately to the next step.
4. In a laminar flow hood, use a 1- or 2- mL pipette to transfer the cells to a sterile 15 mL conical tube. Be careful not to introduce any bubbles during the transfer process.
5. Using a 10 mL pipette, slowly add dropwise 9 mL of SCp2 Expansion Medium (Step 1 above) to the 15 mL conical tube.

   IMPORTANT: Do not add the entire volume of media all at once to the cells. This may result in decreased cell viability due to osmotic shock.
6. Gently mix the cell suspension by slowly pipetting up and down twice. Be careful not to introduce any bubbles.

   IMPORTANT: Do not vortex the cells.
7. Centrifuge the tube at 300 x *g* for 2-3 minutes to pellet the cells.
8. Decant as much of the supernatant as possible. Steps 5-8 are necessary to remove residual cryopreservative (DMSO).
9. Resuspend the cells in 15 mL of SCp2 Expansion Medium.
10. Transfer the cell mixture to a T75 tissue culture flask.
11. Incubate the cells at 37 °C in a humidified incubator with 5% CO_2.

Subculturing Cells

Differential detachment is required ~ every other time that the cell line is passaged to remove fibroblast-like cells from the population.

1. SCp2 cells should be passaged at ~ 80-85% confluency. Do not allow the cells to grow over 85% confluency.
2. Carefully remove the medium from the T75 tissue culture flask containing the 80% confluent layer of SCp2 cells.
3. Rinse the flask with 10 mL 1X PBS. Aspirate after the rinse.
4. Differential detachment of cells:
   - Apply 5-7 mL of Accutase® and incubate in a 37 °C incubator for ~2 minutes. Bang hard on the flask to remove cells that detach easily.
   - Aspirate the Accutase® and any dislodged fibroblastic cells.
   - Add fresh Accutase® to the flask and incubate for an additional 2-3 minutes. Cells that detach during these 2-3 minutes should be predominantly epithelial cells of the SCp2 cell line.
5. Add 10 mL of SCp2 Expansion Medium to the flask.
6. Gently rotate the flask to mix the cell suspension. Transfer the dissociated cells to a 15 mL conical tube.
7. Centrifuge the tube at 300 x *g* for 3-5 minutes to pellet the cells.
8. Discard the supernatant, then loosen the cell pellet by tapping the tip of the tube with a finger.
9. Apply 2-5 mL of SCp2 Expansion Medium to the conical tube and resuspend the cells thoroughly.

   IMPORTANT: Do not vortex the cells.
10. Count the number of cells with a Scepter™ 3.0 handheld automated cell counter using 60 µm sensors.
11. Plate the cells to the desired density. Typical split ratio is 1:6.

Cryopreservation of Cells

SCp2 cells may be frozen in SCp2 Expansion Medium and 10% DMSO using a Nalgene® slow freeze Mr. Frosty™ container.

References

1. Int J Biochem Cell Biol 2007, 39(11): 1987-1994.
2. Proc Natl Acad Sci USA 1994, 91(26): 12378-12382.
3. Oncogene 2004, 23(6): 1187-1196.

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