Data Sheet

UM-SCC-105 Human Squamous Carcinoma Cell Line

Cancer Cell Line

SCC189

Pack Size: ≥ 1x10^6

Store in liquid nitrogen.

FOR RESEARCH USE ONLY

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

Background

Head and neck cancers are often biologically similar, but recent comparisons between HPV-positive and negative genotypes have enhanced demand for HPV-positive cell lines. Currently, a method for early detection of HPV-related head and neck cancer is unavailable resulting in most tumors being detected at a more advanced state.[3] UM-SCC-105 is an HPV18-positive cell line that was derived from a cancerous laryngeal tumor. It is understood that the cancer progression was driven by E6/E7 viral mechanisms rather than cell cycle mutations typically related to tobacco smoke carcinogenesis, giving this cell line a unique background.[2] Other mechanisms, such as understanding viral integration into the host genome, continue to be an important aspect of understanding HPV-driven cancers. The UM-SCC-105 cell line positively expresses head and neck cancer markers such as ALDH1, CD44, and ABCG2. ALDH1 and CD44 have both been implicated as cancer stem cell (CSC) markers in head and neck cancers. CSCs are often associated with a poor prognosis and are necessary to understanding aggressive tumor behavior that overcomes treatment. ABCG2 is also addressed as a common head and neck squamous cell carcinoma marker. ABCG2 functions as an efflux pump and is associated with anticancer drug resistance.[4]

Source

UM-SCC-105 cell line was biopsied from a laryngeal tumor of a 51-year-old "never smoker" male individual.[2]

Short Tandem Repeat

D3S1358: 15, 18	D7S820: 9, 11	vWA: 15, 17	FGA: 18	D8S1179: 12, 15
D21S11: 29, 30	D18S51: 12	D5S818: 11	D13S317: 11, 12	D16S539: 11
TH01: 6, 7	TPOX: 8, 11	CSF1PO: 10	AMEL: X, Y	Penta D: 9, 10
Penta E: 12	Mouse: NA			

Quality Control Testing

- UM-SCC-105 cells are verified to be of human origin and negative for mouse, rat, Chinese hamster, Golden Syrian hamster, and non-human primate interspecies contamination, as assessed by a Contamination Clear panel by Charles River Animal Diagnostic Services.
- Cells tested negative for infectious diseases against a Human Essential CLEAR panel by Charles River Animal Diagnostic Services (Cells are HPV18-Positive.).
- Cells tested negative for mycoplasma.

Storage and Handling

UM-SCC-105 cells should be stored in liquid nitrogen until use. The cells can be cultured for at least 10 passages after initial thawing without significantly affecting the cell marker expression and functionality.

Representative Data

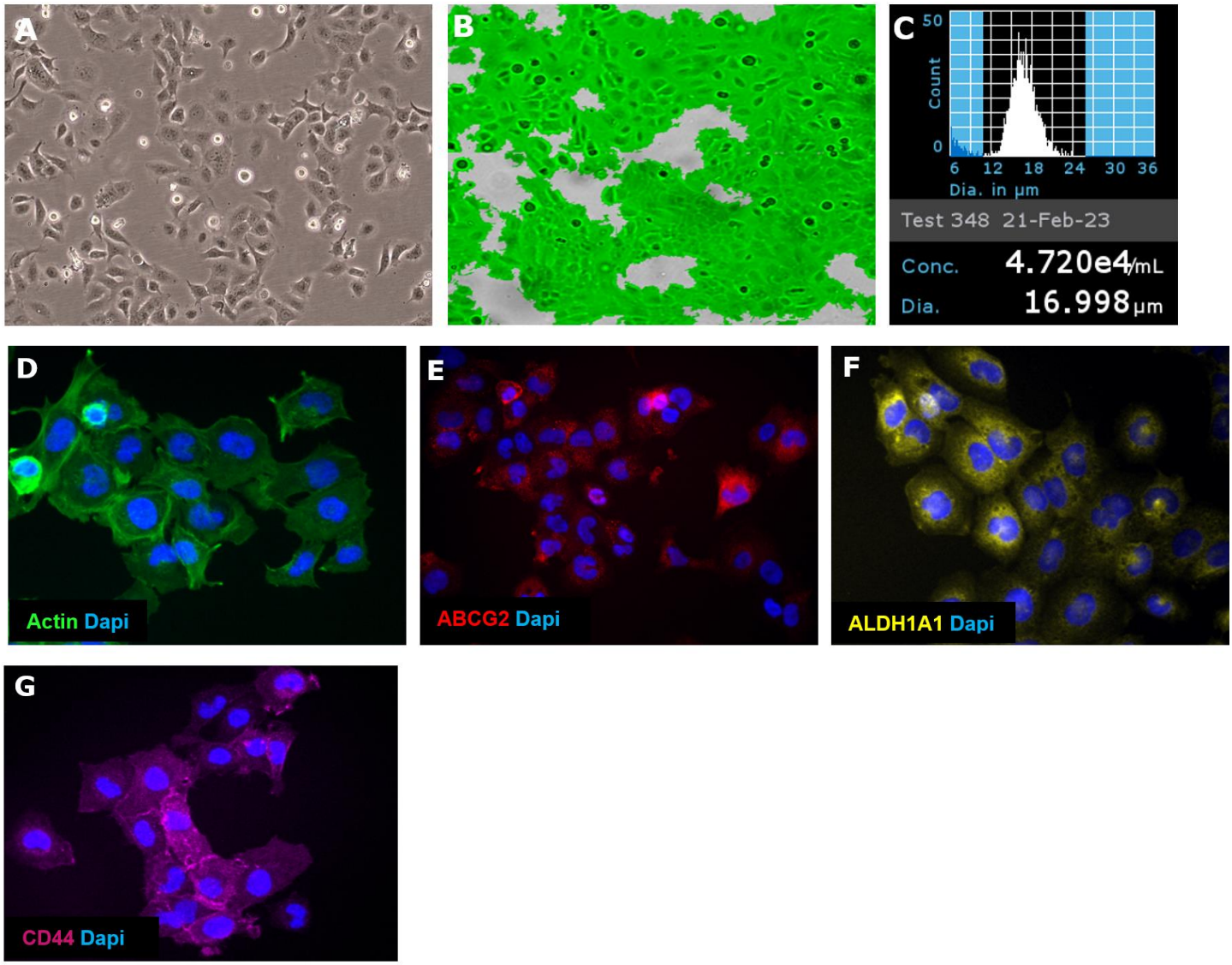

Figure 1. Brightfield image of UM-SCC-105 cells one day after thaw in a T75 flask (**A**). Cell confluency was assessed throughout the culture using the Millicell® Digital Cell Imager (**B**, Cat. No. MDCI10000). Cell counting was performed using Scepter™ 3.0 handheld automated cell counter using 60 µm sensors (**C**, Cat. No. PHCC360KIT). Cells express actin (**D**, Cat. No. 49409), ABCG2 (**E**, Cat. No. ZRB1217), ALDH1A1 (**F** Thermo PA532127) and CD44 (**G**, Cat. No. HPA005785).

Protocols

Thawing the Cells

1. Do not thaw the cells until the recommended medium is on hand. Cells can grow on standard tissue cultureware surfaces without any additional coating. Cells are thawed and expanded in UM-SCC-105 Expansion Medium comprising DMEM-High Glucose Medium (Cat. No. D5796) containing 10% FBS (for example. Cat. No. ES-009-B), and 2 mM L-Glutamine (Cat. No. TMS-002-C).
2. Remove the vial of frozen UM-SCC-105 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 UM-SCC-105 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 UM-SCC-105 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 the Cells

1. Do not allow the cells to grow to confluency. UM-SCC-105 cells should be passaged at ~80-85% confluency.
2. Carefully remove the medium from the T75 tissue culture flask containing the 80% confluent layer of UM-SCC-105 cells.
3. Rinse the flask with 10 mL 1X PBS. Aspirate after the rinse.
4. Apply 3-5 mL of Accutase® and incubate in a 37 °C incubator for 3-5 minutes.
5. Inspect the flask and ensure the complete detachment of cells by gently tapping the side of the flask with the palm of your hand.
6. Add 5-7 mL of UM-SCC-105 Expansion Medium to the plate.
7. Gently rotate the flask to mix the cell suspension. Transfer the dissociated cells to a 15 mL conical tube.
8. Centrifuge the tube at 300 x g for 3-5 minutes to pellet the cells.
9. Discard the supernatant, then loosen the cell pellet by tapping the tip of the tube with a finger.
10. Apply 2-5 mL of UM-SCC-105 Expansion Medium to the conical tube and resuspend the cells thoroughly. Large cell clumps may be broken up by gentle trituration.

    IMPORTANT: Do not vortex the cells**.**
11. Count the number of cells using a hemocytometer or a Scepter™ 3.0 handheld automated cell counter.
12. Plate the cells to the desired density. Typical split ratio is 1:6.

Cryopreservation of the Cells

UM-SCC-105 cells may be frozen in UM-SCC-105 Expansion Medium supplemented with 10% DMSO using a Nalgene® slow freeze Mr. Frosty™container.

References

1. Front Oncol. (2021); 11: 606010.
2. Head Neck (2016); 38(Suppl 1): E459-E467.
3. Head Neck (2017); 39(5): 840-852.
4. Exp Ther Med (2011); 2(6): 1151-1157.

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