Data Sheet

SQ-20B Human Squamous Cell Carcinoma Cell Line

Cancer Cell Line

SCC287

Pack Size: ≥1 x 10^6 viable cells/vial

Store in liquid nitrogen.

FOR RESEARCH USE ONLY

Not for use in diagnostic procedures. Not for Human or Animal Consumption.

Background

Squamous cell carcinoma of the head and neck (HNSCC) represents 90% of all head and neck cancers.[1] HNSCC is the 9th-most common cancer worldwide and is characterized by a high rate of recurrence after therapy, with a median 5-year survival range of 40-50%.[1] Radiation resistance can arise when cells undergo sublethal damage during x-ray treatment, giving rise refractory post-treatment tumors with poor prognosis.[2] Cellular models of HNSCC that demonstrate radiation-resistance are critical for elucidating factor associated with radio-resistance and advancing effective therapies.

The Human Laryngeal Squamous Cell Carcinoma Cell Line (SQ-20B) is a widely used model for radiation-resistant HNSCC. SQ-20B cells were derived from a laryngeal tumor (tumor stage 2 node stage 0) that presented following primary radiation therapy.[2] The SQ-20B cell line harbors the *c-raf* proto-oncogene[3] associated with tumorigenicity and radio-resistance.[4] SQ-20B cells have been characterized by expression of the SCC marker p63 (p40).[5] The characteristics of the SQ-20B cell line demonstrate its utility as a model for cellular mechanisms that give rise to radiation resistance.

Source

The SQ-20B cell line was derived from a tumor on the larynx of a patient undergoing radiation therapy[2] and harbors a male karyotype.[3]

Short Tandem Repeat

D3S1358: 17	D16S539: 11, 13
TH01: 6	CSF1PO: 10
D21S11: 30.2	Penta D: 13
D18S51: 14	vWA: 15, 16
Penta E: 5, 7	D8S1179: 13, 16
D5S818: 11	TPOX: 11
D13S317: 8, 11	FGA: 25
D7S820: 9, 10	Amelogenin: X, Y

Cancer cell lines are inherently genetically unstable. Genetic 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 x 10^6 viable cells.
- Cells are tested negative for infectious diseases by a Human Essential CLEAR panel by Charles River Animal Diagnostic Services.
- Cells are verified to be of human origin and negative for inter-species contamination from mouse, 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

SQ-20B Squamous Cell Carcinoma Cell Line should be stored in liquid nitrogen. The cells can be cultured for at least 10 passages after initial thawing without significantly affecting the cell marker expression and functionality.

Presentation

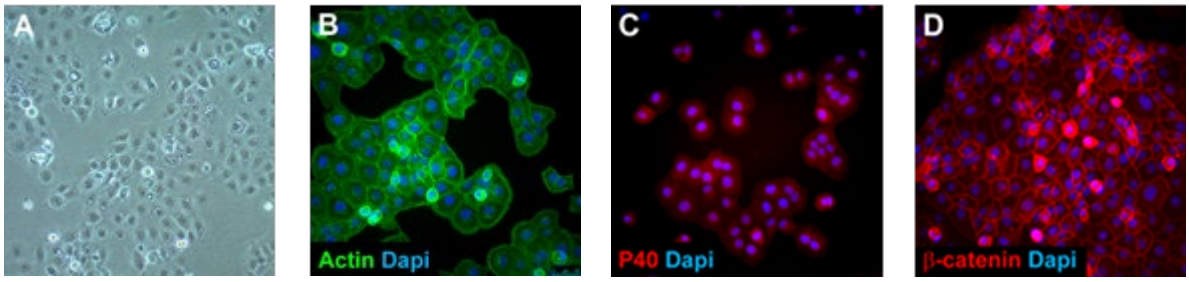

Figure 1. A. Bright-field image of cells one day after thaw. **B.** SQ-20B cells express actin (P5282), **C.** p40 (MABS519-AF488), and **D.** β-catenin (ABE208).

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.

   SQ-20B Expansion Medium: Cells are thawed and expanded in DMEM/F12 (D8062), 20% FBS (ES-009-B), and 0.4 µg/mL hydrocortisone (H0888).
2. Remove the vial of frozen SQ-20B 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 SQ-20B 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 SQ-20B 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

1. Do not allow the cells to grow to confluency. SQ-20B should be passaged at ~80-85% confluence.
2. Carefully remove the medium from the T75 tissue culture flask containing the 80% confluent layer of SQ-20B cells.
3. Rinse the flask with 10 mL 1X PBS. Aspirate after the rinse.
4. Apply 5-7 mL of AccuMax™ or Trypsin-EDTA 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 SQ-20B 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 SQ-20B Expansion Medium to the conical tube and resuspend the cells thoroughly.

    IMPORTANT: Do not vortex the cells.
11. Count the number of cells using a hemocytometer.
12. Plate the cells to the desired density. Typical split ratio is 1:6.

Cryopreservation of Cells

SQ-20B Squamous Cell Carcinoma Cell Line may be frozen in SQ-20B Expansion Medium and 10% DMSO using a Nalgene® slow freeze Mr. Frosty® container.

References

1. J Immunother Cancer. 2019; 7(1): 184.
2. Proc Natl Acad Sci USA. 1986; 83(8): 2684-8.
3. Kasid, U., Pfeifer, A., Weichselbaum, R. R., Dritschilo, A., & Mark, G. E. (1987). The raf oncogene is associated with a radiation-resistant human laryngeal cancer. *Science*, *237*(4818), 1039-1041.
4. Kasid, U., Pfeifer, A., Brennan, T., Beckett, M., Weichselbaum, R. R., Dritschilo, A., & Mark, G. E. (1989). Effect of antisense c-raf-1 on tumorigenicity and radiation sensitivity of a human squamous carcinoma. *Science*, *243*(4896), 1354-1356.
5. Khayyata, S., Yun, S., Pasha, T., Jian, B., McGrath, C., Yu, G., ... & Baloch, Z. (2009). Value of P63 and CK5/6 in distinguishing squamous cell carcinoma from adenocarcinoma in lung fine-needle aspiration specimens. *Diagnostic cytopathology*, *37*(3), 178-183.

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