UM-SCC-104
Squamous Carcinoma Cell Line

Cancer Cell Line

Cat. # SCC072

FOR RESEARCH USE ONLY
NOT FOR USE IN DIAGNOSTIC PROCEDURES
NOT FOR HUMAN OR ANIMAL CONSUMPTION

Pack size: ≥1X10^6 viable cells/vial

Store in liquid nitrogen

Certificate of Analysis

Background

Head and neck squamous-cell carcinoma (HNSCC) is the 6th most common type of cancer world-wide. The cancer may occur in the lip, oral cavity, nasal cavity, paranasal sinuses, salivary glands, pharynx and larynx. Approximately 15% of HNSCC contain genomic DNA from HPV [(2)]. In particular, HPV-16 occurs in 90-95% of all HPV-positive HNSCC cases[2)].

UM-SCC-104 is a unique head and neck squamous carcinoma cell line derived from a 56-year old male with a recurrent oral cavity tumor naturally infected with high-risk human papillomavirus (HPV-16). The tumor from which the cell line was derived failed to respond to initial chemoradiation therapy. The patient had a history of moderate consumption of alcohol and smoking (20 pack/year). UM-SCC-104 contains a small population of ALDH+ cancer stem cells.

STR Profile

D3S1358: 17	CSF1P0: 10
D21S11: 30, 32.2	Penta D: 9, 12
D18S51: 13, 14	vWA: 16, 17
Penta E: 13	D8S1179: 9, 13
D5S818: 12	FGA: 24
D13S317: 8	D19S433: 14, 15.2
D7S820: 10	D2S1338: 17, 20
D16S539: 9	Amelogenin: X

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.

Source

UM-SCC-104 was established at the University of Michigan with written informed consent obtained from the patient and with the approval of the study by the Medical School Institutional Review Board as described by Tang et al.'

Quality Control Testing

- Each vial contains ≥ 1X10^6 viable cells.
- Cells are tested by PCR and are positive for HPV-16 and negative for Hepatitis A, B, C and HIV-1 & 2 viruses.
- Cells are negative for mycoplasma contamination.
- Each lot of cells are genotyped by STR analysis to verify the unique identity of the cell line.

Important Note

UM-SCC cell lines were derived in the lab of Dr. Thomas Carey at the University of Michigan and are exclusively distributed by Merck KGaA. PURCHASER may not distribute UM-SCC cells or derivatives to third parties.

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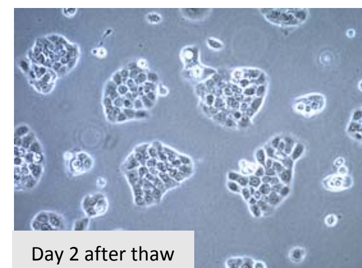
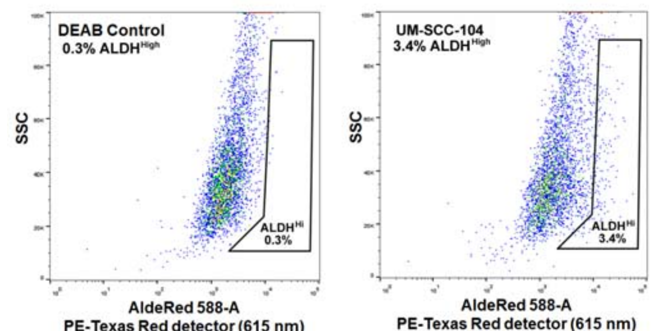
Storage and Handling

UM-SCC-104 cells should be stored in liquid nitrogen. The cells can be cultured for at least 10 passages after the initial thaw without significantly affecting the cell marker expression and functionality.

Data





3.4% ALDH+ cancer stem cells detected in UM-SCC-104 cells by AldeRed 588-A (Cat. No. SCR150)

SPECIES LEGEND: H Human **Ca** Canine **M** Mouse **R** Rat **Rb** Rabbit **B** Bovine **P** Porcine **WR** Most Common Vertebrates

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Protocols

Thawing of Cells

1. Do not thaw the cells until the recommended medium is on hand. Cells can grow on normal tissue culture ware surfaces without any additional coating.

   Cells are thawed and expanded in DMEM High Glucose (EMD Millipore Cat. No. SLM-021-B), 10% FBS (EMD Millipore Cat. No. ES009-B), 1X Pen/Strep (EMD Millipore Cat. No. TMS-AB2-C) and Non-Essential Amino Acids (EMD Millipore Cat. No. TMS-001-C) media.
2. Remove the vial of UM-SCC-104 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 9mL of 10% FBS media (Step 1 above) (pre-warmed to 37°C) to the 15 mL conical tube.

   IMPORTANT: Do not add the whole volume of media at once to the cells. This may result in decreased cell viability due to osmotic shock.
6. Gently mix the cell suspension by slow pipetting up and down twice. Be careful to not 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 a total volume of 10 % FBS medium (pre-warmed to 37°C).
10. Plate the cell mixture onto a T75 tissue culture flask.
11. Incubate the cells at 37°C in a 5% CO2 humidified incubator.
12. The next day, exchange the medium with fresh 10% FBS media (Step 1 above) pre-warmed to 37°C. Exchange with fresh medium every two to three days thereafter.
13. When the cells are approximately 90% confluent, they can be dissociated with Accutase (EMD Millipore Cat. No. SCR005) or trypsin (EMD Millipore Cat. No. SM-2003-C) and passaged or alternatively frozen for later use.

Subculturing of Cells

1. Carefully remove the medium from the T75 tissue culture flask containing the confluent layer of UM-SCC-104 cells.
2. Apply 3-5 mL of accutase or trypsin solution and incubate in a 37°C incubator for 3-5 minutes.
3. Inspect the plate and ensure the complete detachment of cells by gently tapping the side of the plate with the palm of your hand.
4. Add 8 mL of 10% FBS medium (pre-warmed to 37°C) to the plate.
5. Gently rotate the plate to mix the cell suspension. Transfer the dissociated cells to a 15 mL conical tube.
6. Centrifuge the tube at 300 x g for 3-5 minutes to pellet the cells.
7. Discard the supernatant.
8. Apply 2 mL of 10% FBS media (pre-warmed to 37°C) to the conical tube and resuspend the cells thoroughly.

   IMPORTANT: Do not vortex the cells.
9. Count the number of cells using a hemocytometer.
10. Plate the cells to the desired density (typical split ratio is 1:3 to 1:6).

Cryopreservation of Cells

UM-SCC-104 cells can be frozen in the expansion media plus 10% DMSO using a Nalgene slow freeze Mr. Frosty container.

References

1. Tang, A.L., *et al.* (2012) UM-SCC-104: A New human papillomavirus-16-positive cancer stem cell-containing head and neck squamous cell carcinoma cell line. *Head & Neck* 34(10): 1480-1491.

2. Brenner, J.C., Graham, M.P., Kumar, B., Saunders, L.M., Kupfer, R., Lyons, R.H., Bradford, C.R., Carey, T.E. (2010) Genotyping of 73 UM-SCC head and neck squamous cell carcinoma cell lines. *Head Neck* 34 (4): 417-26.

3. Perez-Ordoñez, B., Beauchemin, M., and Jordan, R.C. (2006) Molecular biology of squamous cell carcinoma of the head and neck. *J. Clin Pathol* 59(5): 445-453.

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