Data Sheet

YUMM1.3 Mouse Melanoma Cell Line

Cancer Cell Line

SCC225

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

The promise of immune-based therapies in cancer and recent progress in successful application of these approaches has focused attention on the necessity for immune-competent models to evaluate immune system response to cancer cells. Immunocompetent genetically engineered mouse models harboring discrete genetic drivers of melanoma are essential for studying potential immunotherapies but are limited by the need to maintain colonies of multiple genotypes necessary to generate mouse models with appropriate genetic backgrounds.

The YUMM (Yale University Mouse Melanoma) cell lines were developed as models that recapitulate genetic drivers found in a significant proportion of human melanomas.[1] YUMM1.3 cells are syngeneic with the immunocompetent C57BL/6 mouse background and retain genetic markers of the Braf/Pten mouse models, characterized by activation of Braf and inactivation of Pten and Cdkn2a, in which melanoma tumors develop with short latency.[2]

YUMM1.3 cell line is driven by Braf activation, Pten inactivation, and Cdkn2a inactivation.[1] The cell line is positive for the common melanoma marker, MelanA. YUMM1.3 cells are highly tumorigenic *in vivo*.[1]

Source

YUMM1.3 mouse melanoma cell line was derived from a 4-hydroxytamoxifen-induced melanoma tumor in a male C57BL/6 mouse into which mutations from the Braf/Pten genetically engineered mouse model had been introduced via backcrossing. YUMM1.3 cell line harbors the Braf V600E mutation and is homozygous negative for wild-type Pten and Cdkn2.[1]

Short Tandem Repeat

M18-3: 16	M4-2: 20.3	M6-7: 17	M19-2: 13	M1-2: 19	M7-1: 27.2	M1-1: 16, 17
M3-2: 14	M8-1: 16	M2-1: 16	M15-3: 22.3	M6-4: 18	M11-2: 16	M17-2: 16
M12-1: 17	M5-5: 17	MX-1: 27	M13-1: 17			

Quality Control Testing

- Each vial contains ≥ $1x10^6$ viable cells.
- Cells tested negative for infectious diseases against a Mouse Essential CLEAR panel by Charles River Animal Diagnostic Services.
- Cells are verified to be of mouse origin and negative for human, 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 mycoplasma.

Storage and Handling

YUMM1.3 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

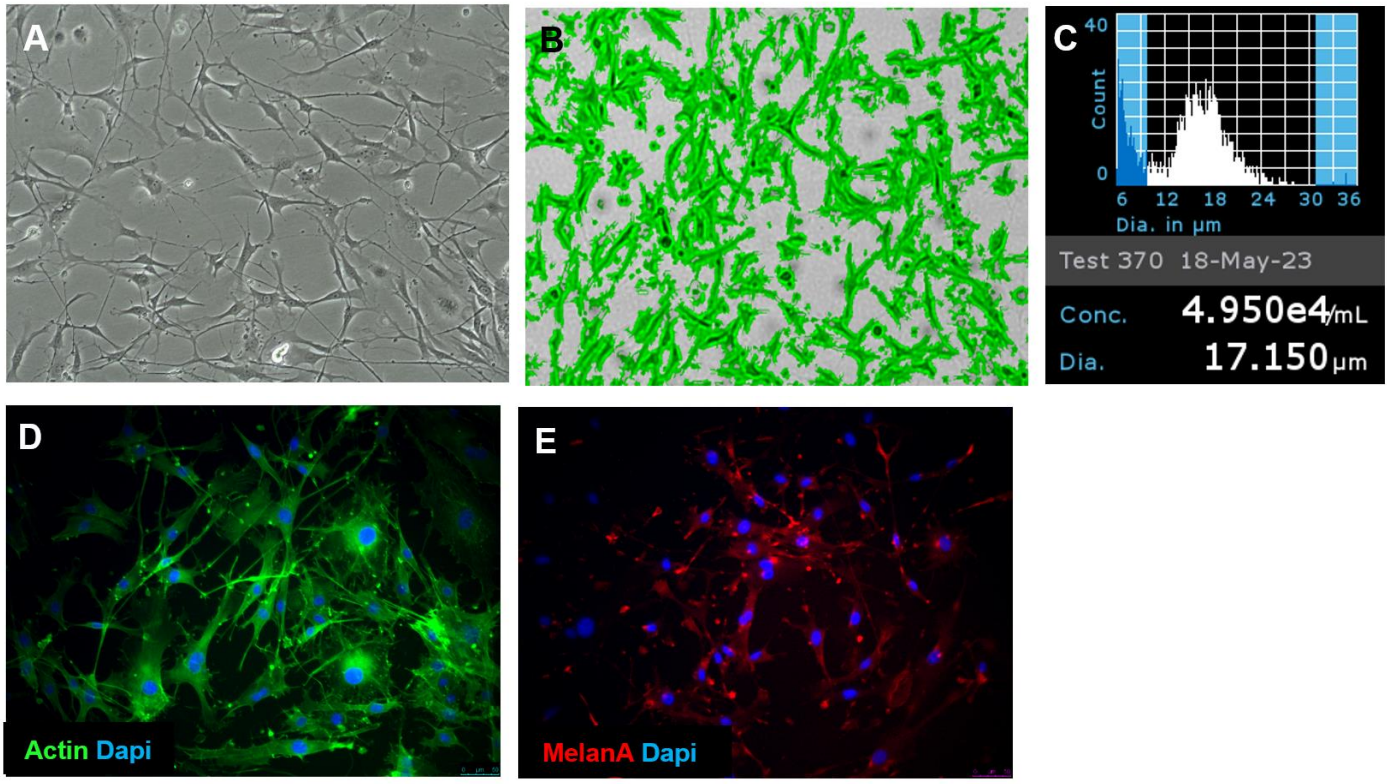

Figure 1. Brightfield image of YUMM1.3 cells one day after thaw in a T75 flask (**A**). Cell confluency was assessed throughout the culture using the Millicell® Digital Cell Imager (**B**, Cat. No. MDCI10000). Cell counting was performed using Scepter™ 3.0 handheld automated cell counter using 60 µm sensors (**C**, Cat. No. PHCC360KIT). Cells express actin (**D**, Cat. No. 49409) and MelanA (**E**, Thermo Scientific MA537601).

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 YUMM Expansion Medium comprising DMEM/F12 medium (Cat. No. DF-042-B) containing 10% FBS (Cat. No. ES-009-B) Non-Essential Amino Acids (Cat. No. TMS-001-C), and 2 mM L-Glutamine (Cat. No. TMS-002-C).
2. Remove the vial of frozen YUMM1.3 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 YUMM 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 5 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 YUMM 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. YUMM1.3 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 YUMM1.3 cells.
3. Rinse the flask with 10 mL 1X PBS. Aspirate after the rinse.
4. Apply 7-10 mL of Accutase® and incubate in a 37 °C incubator for 10-15 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 YUMM 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 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 YUMM 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

YUMM1.3 cells may be frozen in YUMM Expansion Medium supplemented with 10% DMSO using a Nalgene® slow freeze Mr. Frosty™ container.

References

1. Meeth K, Wang JX, Micevic G, Damsky W, & Bosenberg MW. 2016. The YUMM lines: a series of congenic mouse melanoma cell lines with defined genetic alterations. Pigment Cell Melanoma Res. 29(5): 590-597.
2. Dankort D, Curley DP, Cartlidge RA, Nelson B, Karnezis AN, Damsky Jr WE, You MJ, DePinho RA, McMahon M, Bosenberg M. 2009. Braf(V600E) cooperates with Pten loss to induce metastatic melanoma. Nat Genet. 41(5): 544-552.

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