CCMCL1 Mantle Cell Lymphoma Cell Line

Cancer Cell Line

Cat. # SCC132

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.

Certificate of Analysis

Background

Mantle Cell Lymphoma (MCL) is a rare B-cell non-Hodgkin lymphoma (NHL) that primarily affects men over the age of 50. In MCL, B-lymphocytes located in the "mantle zone" of the lymph nodes undergo malignant transformation resulting in uncontrolled proliferation that causes enlargement of the lymph nodes. MCL cells can spread to other tissues such as bone marrow, liver and the gastrointestinal tract. Over 90% of MCL patients overexpress cyclin D1, a cell cycle protein that contributes to abnormal proliferation of the malignant cells. Although cyclin D1 overexpression is believed to directly contribute to the tumorigenesis of MCL, the pathogenesis of the disease is complex and is not fully understood[1, 2].

CCMCL1 cell line is a new cell culture model of aggressive mantle cell lymphoma[3]. Primary MCL cells of a 58 year old man with progressive MCL and hyperleukocytosis were engrafted in NOD-*SCID*-γ mice. Splenocytes obtained from the engrafted mouse were cultured in vitro and yielded the CCMCL1 cell line. CCMCL1 cells possess a blastoid nuclear morphology and proliferate readily in suspension culture[3]. CCMCL1 cells express CD19, CD20, and CD45 and are negative for CD3 and CD25.

Short Tandem Repeat (STR) Profile

D3S1358: 15, 18	D16S539: 12, 13
TH01: 6, 9.3	CSF1PO: 10, 13
D21S11: 31, 32.2	Penta D: 12, 13
D18S51: 15, 16	vWA: 14, 18
Penta E: 5, 7	D8S1179: 13, 14
D5S818: 11, 12	TPOX: 8, 11
D13S317: 11, 12	FGA: 19, 22.2
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.

Storage and Handling

CCMCL1 Mantle Cell Lymphoma 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.

Quality Control Testing

- Each vial contains ≥ $1X10^6$ viable cells.
- Cells are tested negative for Epstein-Barr virus, HPV-16, HPV-18, Hepatitis A, C, Herpesvirus type 6, 7, 8 and HIV-1 & 2 viruses by PCR
- Cells are negative for mycoplasma contamination.
- Each lot of cells is genotyped by STR analysis to verify the unique identity of the cell line.

Representative Data

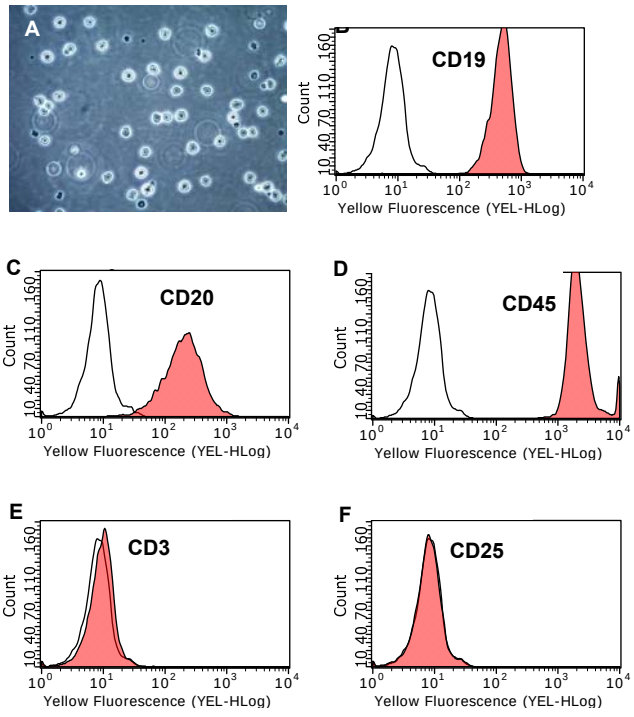

Figure 1. Day 1 after thaw (**A**). Flow analysis of cell surface molecules. CCMCL1 cells express high levels of CD19 (**B**), CD20 (**C**) and CD45 (**D**) and are negative for CD3 (**E**) and CD25 (**F**).

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

CCMCL1 are suspension cells that are very small in size. Passage when the cell density reaches 1–1.5 million cells/mL. Optimal plating density should be ~250,000 cells/mL.

Thawing 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 RPMI-1640 (Sigma Cat. No. R0883), 10% FBS (Cat. No. ES-009-B), 1X L-Glutamine (Cat. No. TMS-002-C) and 1X Penicillin-Streptomycin Solution (Cat. No. TMS-AB2-C) (optional).

2. Remove the vial of frozen CCMCL1 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 CCMCL1 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 10-15 mL of CCMCL1 Expansion Medium.

10. Transfer the cell suspension to a T25 flask.

11. Incubate the cells at 37°C in a humidified incubator with 5% CO_2.

Subculturing Cells

CCMCL1 suspension cells require media replenishment every 2-3 days. Passage cells when the cell density is at 1 -1.5 million cells/mL.

1. Remove flask from incubator, tighten cap and place in tissue culture hood.

2. Dislodge any cells that may adhere to the flask by firmly rapping the side of the flask with the palm of the hand and gently swirl the medium over the cells to mix. Visually inspect flask to ensure the cells have been dislodged and the suspension is free of contaminants.

3. Determine cell count and viability using a hemocytometer or automated cell counter.

4. Cells are typically plated at a density of 250,000 cells/mL

Cryopreservation of Cells

CCMCL1 Human Mantle Cell Lymphoma Cell Line may be frozen in RPMI-1640 medium containing 30-40% FBS and 10% DMSO using a Nalgene slow freeze Mr. Frosty container.

References

1. Pérez-Galán P, Dreyling M, Wiestner A (2011) Mantle cell lymphoma: biology pathogenesis and the molecular basis of treatment in the genomic era. *Blood* 117(1): 26-38.

2. Inamdar AA, Goy A, Ayoub NM, Attia C, Oton L, Taruvai V, Costales M, Lin YT, Pecora A, Suh KS (2016) Mantle cell lymphoma in the era of precision medicine-diagnosis, biomarkers and therapeutic agents. *Oncotarget* 7(30: 48692-48731.

3. Zhao X, Chen-Kiang S, Shetty S, Di Liberto M, Bodo J, Durkin L, Eng K, Elemento O, Smith MR, Hsi ED (2015) CCMCL1: a new model of aggressive mantle cell lymphoma. *Blood* 125(17): 2730-2732.

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