Data Sheet

# ALMC-1 Plasma Cell Myeloma Cell Line

Cancer Cell Line

**SCC430**

**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

Primary systemic amyloidosis is a plasma cell disease characterized by deposition of misfolded immunoglobulin (Ig) light chain products as amyloid fibrils throughout vital tissues and organs. Amyloidosis may present as a range of symptoms, including nervous system dysfunction, swelling, fatigue, and pain in the extremities.[1] Patients with amyloidosis often suffer from other plasma cell diseases such as multiple myeloma, making the study of amyloidosis and development of potential targeted treatments extremely challenging.

ALMC-1 was the first plasma cell amyloidosis cell line isolated and is characterized by c-myc amplification and deletion of the tumor suppressor p53.[2] The Ig lambda secreted by ALMC-1 cells has been shown to form amyloid fibrils *in vitro*.[2] ALMC-1 cells proliferate in presence of IL-6, a critical factor supporting tumor growth in the bone marrow microenvironment.[2] ALMC-1 cells are hypotetraploid, express CD44, and overexpress the oncogene *MAFB*.[2] The ALMC-1 plasma cell myeloma cell line represents a valuable and clinically relevant model for amyloidosis and studies of the mechanisms of myeloma progression.

## Source

The ALMC-1 cell line was isolated from bone marrow of a 50-year-old female patient with amyloidosis and later diagnosed with multiple myeloma.[3]

## Short Tandem Repeat (STR) Profile

| | | | |
|---|---|---|---|
| D3S1358: 15, 16 | Penta E: 10, 12 | D16S539: 11 | D8S1179: 11, 13 |
| TH01: 6, 9.3 | D5S818: 9, 11 | CSF1PO: 11, 12 | TPOX: 8. 11 |
| D21S11: 29, 32 | D13S317: 13 | Penta D: 10, 11 | FGA: 20, 25 |
| D18S51: 11, 17 | D7S820: 10, 11 | vWA: 15, 17 | 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.

## Quality Control Testing

- Each vial contains ≥ 1x10$^6$ 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

ALMC-1 Plasma Cell Myeloma Cell Line 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

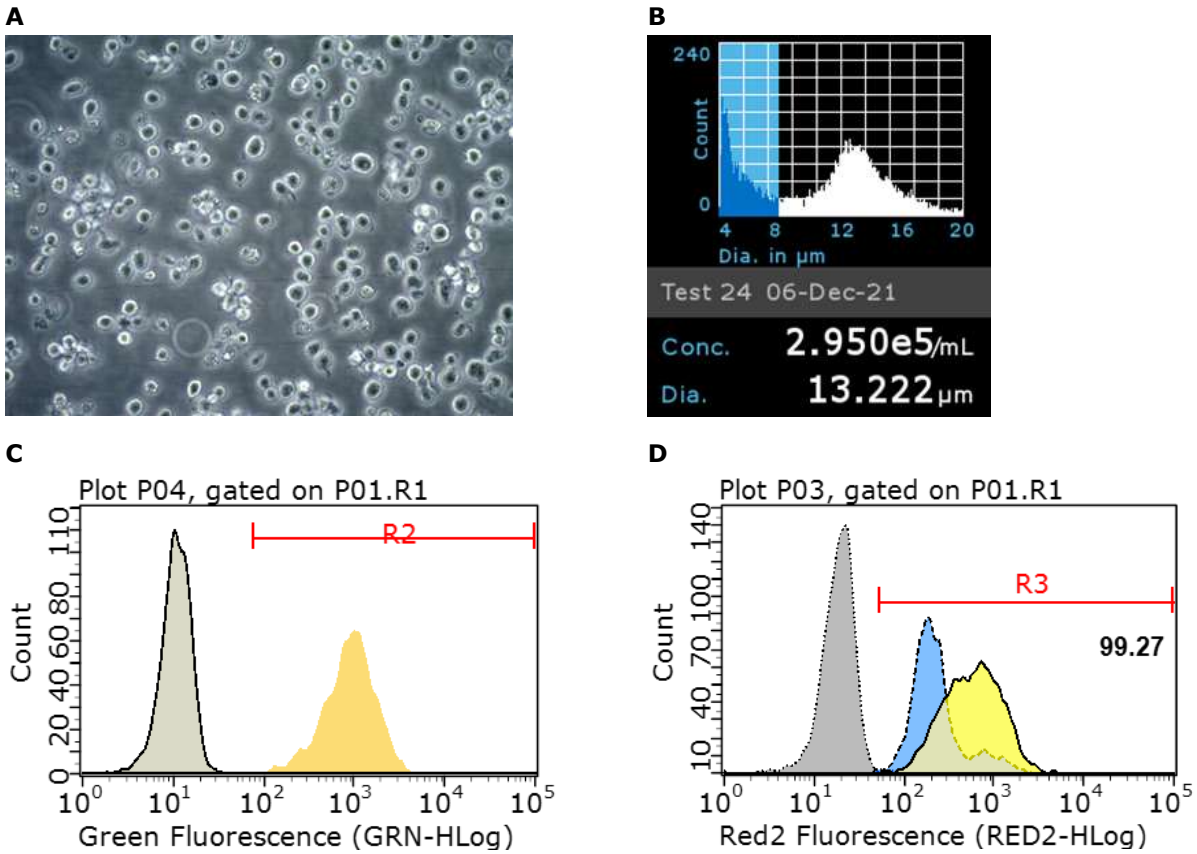


**Figure 1**. (**A**) Bright-field image of ALMC-1 cells two days after thaw in a T25 flask. (**B**) Cell counting was performed using Scepter™ 3.0 Handheld Automated Cell Counter using 40 µm sensor tips (PHCC340KIT). (**C**) ALMC-1 cells express CD44, CD138 (blue histogram, **D**) and CD38 (yellow histogram, **D**) Optional as needed.

## Protocols

ALMC-1 cells grow as suspension cells and thus do not require enzymatic detachment or dissociation. Maintain the cell density in the range of 600,000-900,000 cells/mL. Optimal plating density upon passaging is 300,000-400,000 cells/mL. The cells should not be grown at excessively high densities. Flasks should be maintained upright to provide a comfortable density for the cells.

1. Do not thaw the cells until the recommended medium is on hand. Cells are thawed in ice cold ALMC Thaw Medium containing Iscove's Modified Dulbecco's Medium (IMDM, I6529) with 2 mM L-Glutamine (TMS-002-C), 20% FBS (ES-009-B) and 2 ng/mL IL-6 (GF338). After the first passage, cells may be transitioned to ALMC Expansion Medium containing 10% FBS (see step 10 for formulation).
2. Remove the vial of frozen ALMC-1 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 1-2 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 ice cold ALMC Thaw 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* at 2-8 °C 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 7-10 mL of ice cold ALMC Thaw Medium (Step 1 above).
10. Transfer the cell suspension to a T25 flask in an upright position. Place the flask in an upright position in a 37 °C humidified incubator with 5% $CO_2$. Transition to ALMC Expansion Medium containing Iscove's Modified Dulbecco's Medium with 2 mM L-Glutamine, 10% FBS and 2 ng/mL IL-6 when the cells are proliferating well, typically after the first passage. Exchange media every 2-3 days. Passage cells when the cell density reaches 600,000-900,000 cells/mL.
11. Cells are typically plated at a density of 300,000-400,000 cells/mL.

### Cryopreservation of Cells

ALMC-1 cells may be frozen in ALMC Thaw Medium containing 10% DMSO using a Nalgene® slow freeze Mr. Frosty® container.

## References


1. J Am Coll Cardiol 2016; 68(12): 1323-1341.
2. Blood 112 Suppl 2008; 1: 2732a-2832a.
3. Cancer Res 1993; 53:5320-5327.

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