

LLC1 (LL-2) Cells | 305311

General information

Description

LLC1 (LL-2) cells are a murine cell line derived from the Lewis Lung Carcinoma (LLC), a tumor model extensively used for cancer research. These cells were originally isolated and adapted to in vitro culture from the Lewis Lung Carcinoma in C57BL/6 mice. LLC1 (LL-2) cells have a doubling time of 21 hours and retain high tumorigenic potential, forming primary tumors and lung metastases in syngeneic C57BL/6 mice that are histologically similar to the original tumor.

LLC1 (LL-2) cells have proven valuable for various experimental applications, including studies on cancer metastasis, tumor-host interactions, and drug sensitivity testing. Notably, while these cells show significant in vitro sensitivity to various chemotherapeutic agents, such as cisplatin and methotrexate, their in vivo response can differ, highlighting the complexity of translating in vitro findings to in vivo contexts. The ability of LLC1 (LL-2) cells to form discrete colonies on plastic substrates also makes them suitable for use in focus assays to evaluate drug-induced cytotoxicity, making them an important tool in the evaluation of new cancer therapies.

LLC1 (LL-2) cells exhibit several features typical of aggressive lung carcinoma, including rapid proliferation, high metastatic potential, and resistance to certain chemotherapeutic agents. These cells provide a relevant model for understanding the molecular and genetic alterations associated with lung cancer progression. Studies utilizing LLC1 (LL-2) have contributed to the identification of key signaling pathways and genetic mutations involved in tumor development and metastasis. Moreover, this cell line has been instrumental in evaluating novel therapeutic strategies aimed at inhibiting tumor growth and spread, thereby advancing the field of oncology research.

Organism

Mouse

Tissue

Lung

Disease

Malignant tumors of the mouse pulmonary system

Synonyms

LL/2 (LLC1), LL/2 (LLc1), LL/2(LLc1), LL/2, LL2, LLC1, LLC, Lewis lung carcinoma line 1, Lewis lung carcinoma, Lewis Lung Cancer, Lewis-Lung, Lewis Lung

Characteristics

Breed/Subspecies

C57BL/6

Growth properties

Adherent

Regulatory Data

Citation

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Biosafety level 1**NCBI_TaxID** 10090**CellosaurusAccession** CVCL_4358**Biomolecular Data****Antigen expression** H-2b**Tumorigenic** Yes, in C57BL mice**Viruses** MAP-test negative: Sendai, Ektromelia, Polyoma, K-Virus, Kilham, Reo 3, PVM, LCM, M.pulmonis, MVM, Theiler's GD VII, Toolan's H-1, MHV, LDV, RCV/SDA, M-Adenovirus, B.piliformis.**Handling****Culture Medium** DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO₃, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)**Supplements** Supplement the medium with 10% FBS**Dissociation Reagent** Accutase**Doubling time** 21 hours**Subculturing** Gather the suspension cells in a 15 ml tube and gently wash the adherent cells with PBS lacking calcium and magnesium (use 3-5 ml for T25 flasks and 5-10 ml for T75 flasks). Apply Accutase (1-2 ml for T25 flasks, 2.5 ml for T75 flasks) ensuring full coverage of the cell layer. Allow the cells to incubate at room temperature for 10 minutes. Following incubation, combine and centrifuge both the suspension and adherent cells. After centrifugation, carefully resuspend the cell pellet and transfer the cell suspension into new flasks containing fresh medium.**Seeding density** 1 to 2 x 10⁴ cells/cm²**Fluid renewal** 2 to 3 times per week**Post-Thaw Recovery** After thawing, plate the cells at 5 x 10⁴ cells/cm² and allow the cells to recover from the freezing process and to adhere for at least 24 hours.

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Freeze medium

As a cryopreservation medium, we use complete growth medium (including FBS) + 10% DMSO for adequate post-thaw viability, or CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.

Thawing and Culturing Cells

1. Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
2. Upon receipt, either store the cryovial immediately at temperatures below -150°C to ensure the preservation of cellular integrity, or proceed to step 3 if immediate culturing is required.
3. For immediate culturing, swiftly thaw the vial by immersing it in a 37°C water bath with clean water and an antimicrobial agent, agitating gently for 40-60 seconds until a small ice clump remains.
4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
5. Carefully open the disinfected vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of room-temperature culture medium, mixing gently.
6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
7. Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth.
8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

Incubation Atmosphere

37°C, 5% CO₂, humidified atmosphere.

Shipping Conditions

Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately -78 °C throughout transit. On receipt, inspect the container immediately and transfer vials without delay to appropriate storage.

Storage Conditions

For long-term preservation, place vials in vapor-phase liquid nitrogen at about -150 to -196 °C. Storage at -80 °C is acceptable only as a short interim step before transfer to liquid nitrogen.

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Quality Control & Molecular Analysis

Sterility

Mycoplasma contamination is excluded using both PCR-based assays and luminescence-based mycoplasma detection methods.

To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.