Calu-1

300141

GENERAL INFORMATION

Description

The Calu-1 cell line originates from human lung carcinoma, specifically non-small cell lung cancer (NSCLC). It was established from the pleural effusion of a 47-year-old Caucasian male with epidermoid carcinoma of the lung. This cell line exhibits epithelial-like morphology and has been used extensively in research focused on lung cancer biology, drug screening, and cytotoxicity studies. Calu-1 cells express several markers characteristic of lung epithelial cells and have been a valuable model for studying the molecular pathways involved in lung carcinogenesis and therapy resistance.
Calu-1 cells are known for their high proliferation rate and robustness in culture, making them suitable for in vitro experimental setups. They retain several chromosomal abnormalities typical of cancer cells, which includes multiple copies of chromosomes 7 and 20, demonstrating their utility in genetic and cytogenetic studies. The cell line also exhibits mutations in key oncogenes and tumor suppressor genes like KRAS and TP53, respectively, which are of particular interest in lung cancer research. These genetic characteristics make Calu-1 a useful tool for investigating the impact of genetic alterations on cancer progression and for testing the efficacy of targeted therapies in a controlled environment.

Tissue	Lung
Disease	Carcinoma
Metastatic site	Pleural effusion

Synonyms

- CaLu-1
- CALU-1
- Calu.1
- CALU 1
- Calu 1
- CALU1
- Calu1

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Cell type	Epidermoid

Karyotype

The stem line chromosome number is hypotriploid and the 2S component occurred at 14.2%. Modal chromosome number is 62. Seven markers occurred frequently, M1 (two copies per cell), M6 and M7 were found in most cells, M2 and M3, and M4 and M5 appeared to be mutually exclusive, i.e., only one of M2 or M3, and one of M4 or M5 were present in each cell. Y chromosome was not detected by QM band examination, although the cell line was initiated from a male.

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IDENTIFIERS

Citation

Calu-1 (Cytion catalog number 300141)

NCBI TaxID	9606
Cellosaurus	CVCL_0608

EXPRESSION AND SUSCEPTIBILITY

Protein expression

P53 negative

Antigen expression

Blood Type A, Rh+, HLA A10, A11, B15, Bw35

Isoenzymes

Me-2, 1-2, PGM3, 1, PGM1, 1-2, ES-D, 1, AK-1, 1, GLO-1, 1-2, G6PD, B, Phenotype Frequency Product: 0.0359

Oncogenes

K-ras oncogene positive.

HANDLING AND CULTURE

Culture medium

EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% FBS and 1% NEAA

Dissociation reagent	Accutase

Subculturing

Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium.

Seeding density	1 x 10^4 cells/cm^2 will result in a 90% confluent monolayer in about 4 days
Fluid renewal	2 to 3 times per week
Post-thaw recovery	After thawing, plate the cells at 2 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 hours.

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Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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.

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.

DONOR

Donor age	47 years

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes