Product sheet

Calu-3 Cells | 305032

Información general

Description	Calu-3 cells are a human epithelial cell line derived from the lung adenocarcinoma of a 25-year-old in 1975. These cells exhibit epithelial morphology and are characterized by their ability to form tight junctions, desmosomes, and microvilli, mirroring the structural features of lung epithelium. Calu 3 cells are particularly noted for their high-level secretion of mucins, which are glycoproteins involved in protecting and lubricating the pulmonary airways, making them a relevant in vitro model for studying airway epithelial biology, including mucin production, secretion, and its regulation. Calu-3 human lung adenocarcinoma cells are used in drug discovery and development, particularly for assessing the absorption, distribution, metabolism, and excretion (ADME) of inhaled pharmaceuticals. Their ability to form a polarized monolayer when cultured on permeable supports makes them suitable for studying drug transport and the effects of drugs on the airway epithelium. Calu 3 cells, derived from human lung cancer cell types, are particularly relevant in the study of airway epithelial cells and their role in respiratory conditions. These cells originate from bronchial submucosal glands and are utilized in cell culture models to mimic the human airway, providing insights into respiratory function, epithelial cell injury, lung injury and the study of dieseases such as cystic fibrosis or SARS. The study of Calu 3 cells and their response to chemotherapeutic agents contributes to the broader field of lung cancer research, offering insights into the efficacy of treatments and the potential for developing more effective therapeutic strategies.
Organism	Human
Tissue	Lung adenocarcinoma
Disease	Lung adenocarcinoma
Metastatic site	Pleural effusion
Synonyms	CaLu-3, CALU-3, Calu 3, Calu3, CALU3

Características

Age	25 years
Gender	Male
Morphology	Epithelial
Growth properties	Adherent

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Datos normativos

Citation	Calu-3 (Cytion catalog number 305032)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0609

Datos biomoleculares

Protein expression	Blood Type A, Rh
Antigen expression	Antigen expression: Blood Type A, Rh
Tumorigenic	Yes

Manejo

Culture Medium	EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)
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.
Fluid renewal	2 to 3 times per week
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.

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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% CO_2, 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.

Control de calidad y análisis molecular

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.