Product sheet

NCI-H596 Cells | 305277

General information

Description	The NCI-H596 cell line is derived from a human adenosquamous carcinoma of the lung. This unique cell line is used extensively in lung cancer research, providing a model to study the characteristics and behavior of adenosquamous carcinoma, a rare subtype of non-small cell lung cancer that exhibits features of both adenocarcinoma and squamous cell carcinoma. The NCI-H596 cell line is valuable for investigating the molecular and genetic underpinnings of this hybrid cancer type, as well as for testing potential therapeutic interventions. NCI-H596 cells exhibit an epithelial morphology and express markers indicative of both adenocarcinoma and squamous cell carcinoma, including cytokeratins and mucin proteins. They harbor genetic alterations common in lung cancer, such as mutations in the KRAS and TP53 genes, which are pivotal in cell signaling, growth, and apoptosis. Researchers utilize NCI-H596 cells to explore the signaling pathways involved in tumor progression, such as the EGFR, MAPK, and PI3K/Akt pathways. These cells are also employed in drug discovery and development, allowing for the evaluation of chemotherapeutic agents, targeted therapies, and novel treatment combinations. The NCI-H596 cell line's dual histological features make it a critical tool for understanding the complexities of adenosquamous carcinoma and for advancing therapeutic strategies in lung cancer treatment.
Organism	Human
Tissue	Lung
Disease	Adenosquamous cell carcinoma
Synonyms	H596, H-596, NCI-HUT-596, NCIH596

Characteristics

Age	73 years
Gender	Male
Ethnicity	European
Morphology	Epithelial
Growth properties	Adherent

Regulatory Data

Citation	NCI-H596 (Cytion catalog number 305277)

NCI-H596 Cells | 305277

Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1571

Biomolecular Data

Tumorigenic	Yes, in nude mice
Mutational profile	Mutation: PIK3CA, p.Glu545Lys (c.1633G>A), heterozygous; Mutation: RB1, p.Ser182fs*3 (c.541_542insT), heterozygous; Mutation: TP53, p.Gly245Cys (c.733G>T), homozygous

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
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.

NCI-H596 Cells | 305277

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.

Quality Control & Molecular Analysis

NCI-H596 Cells | 305277

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.