Product sheet

NCI-H322 Cells | 305839

General information

Description	NCI-H322 is a human non-small cell lung cancer (NSCLC) cell line derived from an adult patient with a bronchioalveolar carcinoma, a histologic subtype of adenocarcinoma. This cell line was established by the NCI-Navy Medical Oncology Branch as part of a comprehensive effort to generate clinically annotated lung cancer models for research and therapeutic development. NCI-H322 exhibits adherent epithelial morphology in vitro and is typically maintained in RPMI-1640 medium supplemented with 10% fetal bovine serum under standard cell culture conditions. Molecular profiling of NCI-H322 reveals that it carries a KRAS mutation, which contributes to oncogenic signaling through the MAPK/ERK and PI3K/AKT pathways. This mutation renders the cell line resistant to EGFR-targeted therapies and makes it suitable for studies focused on KRAS-driven lung adenocarcinoma. Additionally, the line is wild-type for EGFR and TP53, offering a defined genetic context for dissecting KRAS-dependent tumor biology. Its transcriptional and proteomic data have been included in large-scale datasets such as the Cancer Cell Line Encyclopedia (CCLE), where it has contributed to analyses of lineage-specific vulnerabilities and drug response patterns. NCI-H322 has been used extensively in pharmacologic screening and mechanistic studies to explore sensitivity to MEK inhibitors, PI3K pathway inhibitors, and chemotherapeutic agents. Its consistent performance across studies and well-documented mutation profile make it a valuable preclinical model for KRAS-mutant NSCLC, as well as a key reference in efforts to understand tumor heterogeneity and drug resistance in lung adenocarcinoma.
Organism	Human
Tissue	Lung
Disease	Minimally invasive lung adenocarcinoma
Synonyms	H322, H-322, H322T, NCI-H322T, NCIH322T, NCI-322, NCIH322

Characteristics

Age	52 years
Gender	Male
Ethnicity	Caucasian
Cell type	Club cells
Growth properties	Adherent

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Regulatory Data

Citation	NCI-H322 (Cytion catalog number 305839)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1556

Biomolecular Data

Mutational profile	Mutation: TP53, Simple, p.Arg248Leu (c.743G>T), Homozygous (PubMed=1311061, PubMed=1565469, PubMed=10536175, PubMed=20557307).

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
Doubling time	50
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% 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

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.