Product sheet

NCI-H69AR Cells | 305840

Informações gerais

Description	NCI-H69AR is a multidrug-resistant derivative of the parental small cell lung carcinoma (SCLC) cell line NCI-H69. It was developed through continuous selection in increasing concentrations of chemotherapeutic agents such as doxorubicin. As a result, NCI-H69AR serves as a key model system for investigating mechanisms of acquired drug resistance in SCLC. This cell line retains many of the morphological and biochemical features of its parental line but exhibits profound resistance to several cytotoxic agents, making it especially relevant for studying efflux-mediated resistance pathways. The primary mechanism of resistance in NCI-H69AR involves overexpression of the multidrug resistance protein P-glycoprotein (P-gp), encoded by the MDR1 gene. P-gp functions as an ATP-dependent efflux pump that reduces intracellular drug accumulation, particularly for anthracyclines, vinca alkaloids, and epipodophyllotoxins. Additionally, NCI-H69AR exhibits altered expression of membrane-associated proteins, including annexin II, which may be associated with changes in calcium signaling and vesicular trafficking-processes implicated in drug resistance and cellular stress response. These phenotypic alterations make NCI-H69AR a valuable model for identifying modulators of drug resistance and for evaluating the efficacy of agents targeting efflux mechanisms or bypassing resistance pathways altogether. NCI-H69AR has also been used in comparative studies with its parental line to delineate changes in gene and protein expression, drug sensitivity profiles, and response to pharmacologic inhibitors. This comparative framework helps clarify the evolution of drug resistance in cancer and contributes to the design of combination therapies aimed at re-sensitizing resistant tumors. The line is typically cultured in RPMI-1640 medium supplemented with fetal bovine serum and maintained under standard atmospheric conditions. Its robustness and well-characterized resistance phenotype have secured its place in preclinical research on drug resistance in lung cancer.
Organism	Human
Tissue	Metastatic
Disease	Lung small cell carcinoma
Metastatic site	Pleural effusion
Synonyms	NCI-H69 AR, NCI-H69/AR, H69AR, H-69AR

Características

Age	55 years
Gender	Male
Ethnicity	Caucasian

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Morphology	Epithelial
Cell type	Epithelial like
Growth properties	Adherent

Dados regulatórios

Citation	NCI-H69AR (Cytion catalog number 305840)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_3513

Dados biomoleculares

Tumorigenic	Yes; Yes, in nude mice
Mutational profile	Mutation: PIK3CA, Simple, p.Gly106_Arg108del (c.317_325delGGCAACCGT), Heterozygous (from parent cell line).Mutation, RB1, Simple, p.Glu748Ter (c.2242G>T), Homozygous (from parent cell line).Mutation, TP53, Simple, p.Glu171Ter (c.511G>T), Homozygous (from parent cell line).

Manuseio

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 20% FBS
Dissociation Reagent	Accutase
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.

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.

Controle de Qualidade e Análise Molecular

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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.