Product sheet

NCI-H820 Cells | 305841

Description	NCI-H820 is a human non-small cell lung cancer (NSCLC) cell line derived from a lung adenocarcinoma of an adult patient. It is part of the NCI lung cancer panel and has been widely used in research on targeted therapies due to its unique genetic features. Morphologically, the cells exhibit epithelial characteristics and grow as adherent monolayers. They are typically cultured in RPMI-1640 medium supplemented with 10% fetal bovine serum and maintained under standard cell culture conditions (37°C, 5% CO_2). Genetically, NCI-H820 is notable for harboring an EGFR exon 19 deletion mutation (E746-A750del), a common activating mutation associated with sensitivity to EGFR tyrosine kinase inhibitors (TKIs). However, it also possesses a secondary EGFR T790M mutation, which is a well-established mechanism of acquired resistance to first-generation TKIs such as erlotinib and gefitinib. This dual mutation status makes NCI-H820 a highly relevant model for investigating resistance mechanisms and for evaluating third-generation EGFR inhibitors like osimertinib, which can overcome T790M-mediated resistance. In addition to its EGFR mutations, NCI-H820 has been used to study autocrine signaling loops and growth factor receptor pathways. Research has demonstrated that it expresses the type I insulin-like growth factor receptor (IGF-1R), contributing to survival and proliferation signaling. Its dual mutation profile and expression of receptor tyrosine kinases make it a valuable tool in preclinical studies focused on drug resistance, combination therapy strategies, and the development of personalized treatment approaches for EGFR-mutant NSCLC.
Organism	Human
Tissue	Metastatic
Disease	Lung papillary adenocarcinoma
Metastatic site	Lymph node
Synonyms	H820, H-820, NCIH820

Age	53 years
Gender	Male
Ethnicity	Caucasian
Morphology	Epithelial
Cell type	Epithelial like

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Growth properties	Adherent

Citation	NCI-H820 (Cytion catalog number 305841)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1592

Isoenzymes	AK-1, 1 ES-D, 1 G6PD, B GLO-I, 2 Me-2, 2 PGM1, 1 PGM3, 1
Tumorigenic	Yes; in nude mice
Mutational profile	Mutation: TP53, Simple, p.Thr284Pro (c.850A>C), Homozygous
Karyotype	Near triploid; modal number = 69; range = 46 to 74

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 5% FBS
Dissociation Reagent	Accutase
Doubling time	65
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.

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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.