Product sheet

HCC44 Cells | 305456

General information

Description	The HCC44 cell line is a non-small cell lung cancer (NSCLC) model known for harboring a KRAS mutation, which plays a significant role in cancer progression and treatment resistance. In a study exploring the characteristics of KRAS-driven NSCLC, HCC44 was identified as dependent on malic enzyme 1 (ME1) for viability, suggesting that the KRAS mutation in this cell line enhances the expression of genes involved in glutamine metabolism and redox balance. ME1's role in generating NADPH aids in countering oxidative stress, which is particularly vital for KRAS-mutant cancer cells undergoing rapid proliferation. Further research into natural compounds like chromomycin analogs has shown potential therapeutic relevance to HCC44. Chromomycin SA2 and related molecules were evaluated for their cytotoxic effects on HCC44, showing reduced potency compared to other analogs due to modifications in side chains that affect their interaction with DNA. Additionally, the cell line's response to radiation therapy has been studied, indicating that perturbing glutamine metabolism could sensitize HCC44 to radiation, potentially overcoming some aspects of radioresistance conferred by KRAS mutations.
Organism	Human
Tissue	Lung
Disease	Adenocarcinoma
Synonyms	HCC-44, HCC0044, Hamon Cancer Center 44

Characteristics

Age	54 years
Gender	Female
Ethnicity	European
Morphology	Epithelial-like
Growth properties	Adherent

Regulatory Data

Citation	HCC44 (Cytion catalog number 305456)
Biosafety level	1

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NCBI_TaxID	9606
CellosaurusAccession	CVCL_2060

Biomolecular Data

Mutational profile	Mutation: KRAS, p.Gly12Cys (c.34G>T), homozygous; Mutation: TERT, c.1-124C>A (c.228C>A); Mutation: TP53, p.Ser94Ter (c.281C>G), homozygous; Mutation: TP53, p.Arg175Leu (c.524G>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.
Seeding density	1 to 3 x 10^4 cells/cm^2
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.

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.