Product sheet

HCC1954 Cells | 305268

General information

Description	The HCC1954 cell line is derived from the primary ductal carcinoma of a human adult breast cancer patient. This cell line is prominently used in breast cancer research, especially for investigating the genetic and molecular characteristics of HER2-positive (HER2+) and triple-negative breast cancers. HCC1954 cells are HER2-overexpressing and possess mutations in the PIK3CA gene, making them a valuable model for studying the signaling pathways involved in cancer progression and the development of targeted therapies. HCC1954 cells exhibit an epithelial morphology and are known for their aggressive growth characteristics both in vitro and in vivo. They express markers associated with aggressive breast cancer phenotypes, including HER2/neu, but lack expression of estrogen receptor (ER) and progesterone receptor (PR), classifying them as triple-negative breast cancer cells. This cell line is extensively used to evaluate the efficacy and mechanisms of action of HER2-targeted therapies, such as trastuzumab, as well as novel PI3K inhibitors. Additionally, HCC1954 cells are employed in research focused on identifying biomarkers for drug resistance and exploring combination treatment strategies to enhance therapeutic outcomes. Their relevance in understanding the biology of aggressive breast cancer and in the development of effective treatments highlights the significance of the HCC1954 cell line in oncological research.
Organism	Human
Tissue	Breast
Disease	Carcinoma
Synonyms	HCC-1954, Hamon Cancer Center 1954

Characteristics

Age	61 years
Gender	Female
Ethnicity	East Indian
Morphology	Epithelial
Growth properties	Adherent

Regulatory Data

Citation	HCC1954 (Cytion catalog number 305268)

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Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1259

Biomolecular Data

Receptors expressed	Estrogen receptor -, progesteron receptor -
Protein expression	Epithelial glycoprotein 2 (EGP2), cytokeratin 19
Oncogenes	Her2/neu+ (overexpressed)
Mutational profile	Mutation: PIK3CA, p.His1047Arg (c.3140A>G); Mutation: TP53, p.Tyr163Cys (c.488A>G); Gene fusion: CLTC + VMP1 = CLTC-VMP1

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, add 2.5 g/L glucose, 10 mM HEPES and 1mM sodium pyruvate
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.

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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.

Quality Control & Molecular Analysis

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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.