HCC38

305307

GENERAL INFORMATION

Description

The HCC38 cell line is a triple-negative breast cancer (TNBC) model characterized by its lack of estrogen receptor (ER), progesterone receptor (PR), and HER2 expression, making it a critical tool for studying aggressive breast cancer subtypes that do not respond to hormone or HER2-targeted therapies. HCC38 cells are particularly valuable for research into treatment resistance and the mechanisms driving TNBC progression. For instance, exposure to cisplatin can lead to the development of cisplatin-resistant subclones such as HCC38CisR, which exhibit increased activation of pro-survival pathways mediated by receptor tyrosine kinases (e.g., IGF1R and EGFR). This resistance can be counteracted by targeted therapies like NVP-BEZ235, a dual PI3K/mTOR inhibitor, which has shown potential to restore cisplatin sensitivity in HCC38CisR.
In addition, the HCC38 cell line has been studied in the context of apoptosis and invasion mechanisms. The knockdown of specific genes, such as OC90, has been shown to significantly reduce cell viability and enhance apoptosis in HCC38, underlining the role of specific molecular targets in cell survival and invasive behavior. This feature is relevant for identifying novel therapeutic approaches for TNBC. Moreover, HCC38's response to treatment, including resistance mechanisms, highlights its utility for exploring drug combinations that could circumvent resistance and enhance treatment efficacy.
Furthermore, studies with HCC38 have demonstrated the efficacy of small-molecule inhibitors in overcoming resistance when combined with conventional chemotherapeutics. For example, co-treatment strategies involving PI3K/mTOR inhibitors alongside traditional chemotherapy agents show promise in reducing proliferation rates and inducing apoptosis in resistant cell variants. Such findings contribute to the development of targeted therapies that address the challenges of treatment resistance in TNBC.

Tissue	Breast
Disease	Carcinoma

Synonyms

- Hcc38
- HCC-38
- HCC 38 HCC0038
- Hamon Cancer Center 38

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Cell type	Epithelial cell

IDENTIFIERS

Citation

HCC38 (Cytion catalog number 305307)

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NCBI TaxID	9606
Cellosaurus	CVCL_1267

EXPRESSION AND SUSCEPTIBILITY

Protein expression

Epithelial glycoprotein 2 (EGP2), cytokeratin 19

Oncogenes

Her2/neu-, p53+

Mutational profile

Mutation: TP53, p.Arg273Leu (c.818G>T), homozygous

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

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.

Fluid renewal	2 to 3 times per week

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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.

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.

DONOR

Donor age	50 years
Ethnicity	Caucasian

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes