**Product sheet**

# HCC38 Cells | 305307

## General information

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| **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.<br><br>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.<br><br>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. |
| **Organism** | Human |
| **Tissue** | Breast |
| **Disease** | Carcinoma |
| **Synonyms** | Hcc38, HCC-38, HCC 38 HCC0038, Hamon Cancer Center 38 |

## Characteristics

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| **Age** | 50 years |
| **Gender** | Female |
| **Ethnicity** | Caucasian |
| **Morphology** | Epithelial-like |
| **Cell type** | Epithelial cell |

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| **Growth properties** | Adherent, single cells and loosely attached cluster |

## Regulatory Data

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| **Citation** | HCC38 (Cytion catalog number 305307) |
| **Biosafety level** | 1 |
| **NCBI_TaxID** | 9606 |
| **CellosaurusAccession** | CVCL_1267 |

## Biomolecular Data

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| **Protein expression** | Epithelial glycoprotein 2 (EGP2), cytokeratin 19 |
| **Oncogenes** | Her2/neu-, p53+ |
| **Mutational profile** | Mutation: TP53, p.Arg273Leu (c.818G>T), homozygous |

## Handling

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| **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. |
| **Fluid renewal** | 2 to 3 times per week |

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| **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.<br>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.<br>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.<br>4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.<br>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.<br>6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.<br>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.<br>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.<br><br>To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections. |