

ZR-75-30 Cells | 305389

Description

ZR-75-30 is a human breast cancer cell line derived from a ductal carcinoma. Genomic profiling studies have shown that ZR-75-30 harbors amplification of the ERBB2/HER2 gene, a key driver in a subset of breast cancers. This amplification results in elevated HER2 protein expression, which has been linked to increased proliferation and resistance to certain therapies. Additionally, ZR-75-30 exhibits alterations in the epidermal growth factor receptor (EGFR) signaling pathway, including gains of EGFR-related genes, suggesting that the cell line may be useful in studying HER2-targeted therapies and their resistance mechanisms.

Transcriptomic analyses have placed ZR-75-30 within the luminal subtype of breast cancer, supporting its relevance for studying endocrine therapy responses. The cell line has been included in studies evaluating precision medicine approaches, where molecular profiling has helped predict responses to targeted treatments. Given its molecular characteristics, ZR-75-30 is widely used as a preclinical model for evaluating hormone receptor-targeted therapies and HER2 inhibitors, making it a valuable tool in breast cancer research.

Organism Human

Tissue Breast, Mammary gland

Disease Invasive breast carcinoma of no special type

Metastatic site Ascites

Synonyms ZR75-30, ZR7530

Age 47 years

Gender Female

Ethnicity African American

Morphology Epithelial

Cell type Epithelial

Growth properties Adherent

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Citation ZR-75-30 (Cytion catalog number 305389)

Biosafety level 1

NCBI_TaxID 9606

CellosaurusAccession CVCL_1661

Mutational profile Mutation: Gene fusion, APPBP2 + HGNC, PHF20L1, Name(s)=APPBP2-PHF20L1. Gene fusion, BCAS3 + HGNC, HOXB9, Name(s)=BCAS3-HOXB9. Gene fusion, COL14A1 + HGNC, SKAP1, Name(s)=COL14A1-SKAP1. Gene fusion, DDX5 + HGNC, DEPTOR, Name(s)=DDX5-DEPTOR. Gene fusion, BCAS3 + HGNC, ERBB2, Name(s)=ERBB2-BCAS3. Gene fusion, ENPP2 + HGNC, PLEC, Name(s)=PLEC-ENPP2, PLEC1-ENPP2. Gene fusion, PCGF2 + HGNC, TAOK1, Name(s)=TAOK1-PCGF2. Gene fusion, NRIP1 + HGNC, TIAM1, Name(s)=TIAM1-NRIP1. Gene fusion, ARHGAP32 + HGNC, TIMM23, Name(s)=TIMM23-ARHGAP32. Gene fusion, LASP1 + HGNC, TRPS1, Name(s)=TRPS1-LASP1. Gene fusion, CWC25 + HGNC, USP32, Name(s)=USP32-CWC25, USP32-CCDC49. Gene fusion, OPRD1 + HGNC, ZMYM4, Name(s)=ZMYM4-OPRD1. Mutation, BRAF, Simple, p.Ile326Thr (c.977T>C), Heterozygous, CDH1, Simple, p.Glu243Ter (c.727G>T), Homozygous.

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, 10 µg/ml Insulin

Doubling time 110 hours

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 $300 \times g$ 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.