CCK-81

305757

GENERAL INFORMATION

Description

The CCK-81 cell line is a human colorectal adenocarcinoma model derived from a primary tumor. It is commonly used in cancer biology studies focusing on gastrointestinal malignancies and has been characterized for various genetic alterations and drug response profiles. According to functional screening of tumor suppressor genes, CCK-81 expresses mutant **TP53**, as confirmed by yeast-based functional assays, with only about 6% of colonies showing transcriptionally active p53 phenotype, indicating a loss-of-function mutation. This mutation status aligns with its tumorigenic origin and contributes to its relevance as a model for studying p53-deficient colorectal cancers.
CCK-81 has also been included in major cancer cell line compendia such as the Cancer Cell Line Encyclopedia (CCLE), where it has been profiled across multiple omics layers including gene expression, copy number variation, mutation status, and drug sensitivity. Its inclusion in these datasets allows for integrated analyses of pathway dependencies and therapeutic vulnerabilities across colorectal cancer subtypes. For instance, proteogenomic profiling has highlighted that colorectal cancer cell lines, including CCK-81, often exhibit dysregulated signaling pathways such as Wnt/β-catenin and MAPK, making them suitable for precision oncology studies targeting these axes.

Tissue	Metastatic
Disease	Colon adenocarcinoma
Metastatic site	Lymph node

Synonyms

- CCK81

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Doubling time	45 hours

IDENTIFIERS

Citation

CCK-81 (Cytion catalog number 305757)

NCBI TaxID	9606
Cellosaurus	CVCL_2873

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: FBXW7, Simple, p.Arg465Cys (c.1393C>T), Heterozygous (DepMap=ACH-000963).Mutation, PIK3CA, Simple, p.Cys420Arg (c.1258T>C), Heterozygous (DepMap=ACH-000963).Mutation, TP53, Simple, p.Pro278His (c.833C>A), Heterozygous

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HANDLING AND CULTURE

Culture medium

EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)

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

Supplements

Supplement the medium with 10% FBS, 1% NEAA, 1mM Sodiumpyruvat

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

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	62 years

Ethnicity	Japanese

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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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