COLO-320

305315

GENERAL INFORMATION

Description

COLO-320 is a human colorectal adenocarcinoma cell line derived from a metastatic tumor. It is extensively used in research to study colorectal cancer biology, drug resistance mechanisms, and the effects of anticancer agents. The COLO-320 cells are characterized by the overexpression of various oncogenes, such as c-myc, which is known to drive cell proliferation. This cell line is also a model for investigating the role of epigenetic modifications in cancer progression, as it exhibits frequent DNA methylation and histone acetylation abnormalities that influence the expression of key tumor suppressor genes and cell cycle regulators.
Research on COLO-320 has revealed that the methylation status of the CDKN2A (p16) promoter is a critical factor in the regulation of this tumor suppressor gene, which is responsible for inhibiting the G1/S phase transition in the cell cycle. Treatment with DNA methyltransferase inhibitors like 5-aza-2'-deoxycytidine (5-aza-dC) has been shown to demethylate the CDKN2A promoter, restoring gene expression and potentially inducing growth arrest. Furthermore, histone deacetylase inhibitors (HDACis) such as trichostatin A (TSA) can modulate histone acetylation levels, affecting the expression of other genes, including p21WAF1. However, studies have indicated that histone acetylation specifically influences p21WAF1 without significantly impacting CDKN2A-associated histones, suggesting differential epigenetic regulation.
Another area of research focuses on COLO-320's role in multidrug resistance (MDR). The cell line has been used to evaluate the efficacy of various MDR modulators. Phenothiazine derivatives, for instance, have demonstrated the ability to inhibit P-glycoprotein (P-gp) activity, a protein often overexpressed in COLO-320 cells that pumps out chemotherapeutic drugs, thereby reducing their intracellular concentration and efficacy. Studies have utilized flow cytometry with rhodamine 123 efflux assays to quantify the effectiveness of these compounds in reversing MDR, providing insights into potential strategies to overcome drug resistance in colorectal cancer.

Tissue	Colon
Disease	Adenocarcinoma

Synonyms

- Colo-320
- Colo 320
- COLO #320
- COLO320
- Colo320
- CoLo320
- Co320
- COLO 320F
- Colorado 320
- COLO 320

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent and suspension
Biosafety level	1

IDENTIFIERS

Citation

COLO-320 (Cytion catalog number 305315)

Cytion GmbH
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Banking information
Sparkasse Heidelberg
IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

NCBI TaxID	9606
Cellosaurus	CVCL_1989

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: TP53, p.Arg248Trp (c.742C>T)

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, 2,5 g/L glucose, 10 mM HEPES

Dissociation reagent	Accutase
Seeding density	2 - 4 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	55 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

PRODUCT DETAILS

Composition table

Cytion GmbH
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