LoVo

300266

GENERAL INFORMATION

Description

The LOVO cell line, derived from a grade IV Dukes' type C colon adenocarcinoma, is characterized by mutations in the adenomatous polyposis coli (APC) gene, Kirsten rat sarcoma viral oncogene homolog (KRAS), and tumor protein p53 (TP53). These genetic features are instrumental in studying the molecular basis of colorectal cancer progression, metastasis, and drug resistance mechanisms.
LoVo cells serve as a critical model for screening anti-cancer compounds and by understanding how cancer cells like LoVo develop resistance, researchers can design more effective therapies. LoVo cells are also employed in molecular biology studies to explore signaling pathways that regulate cancer cell growth, survival, and metastasis.
In the context of human colon cancer and colorectal cancer cell lines, LoVo cells offer insights into the mechanisms of tumor growth and the process of metastasis, particularly node metastasis, and the tumor microenvironment driving cancer progression. The use of LoVo colon cancer cells, especially in lovo xenograft models, allows researchers to study cancer cell dynamics and metastatic potential.
Deep sequencing and gene expression analysis in LoVo cells have shed light into the specific genes and their roles in colorectal cancer cells. This research has has highlighted the importance of integrins, such as integrin β1, in cancer cell migration and invasion, and the regulation of key molecules like MMP2 in signaling pathways contributing to the understanding of cancer cell lines' invasive properties.
LoVo cells, as a model system in colorectal cancer cell lines, play a pivotal role in advancing our understanding of the molecular aspects of cancer, from gene and protein expression to the intricacies of tumor growth and metastasis.

Tissue	Colon, grade IV, Dukes' type C
Disease	Adenocarcinoma
Metastatic site	Left supraclavicular lymph node

Synonyms

- LOVO

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Tumourigenic	Yes, in nude mice

IDENTIFIERS

Citation

LoVo (Cytion catalog number 300266)

NCBI TaxID	9606
Cellosaurus	CVCL_0399

EXPRESSION AND SUSCEPTIBILITY

Antigen expression

HLA A11, B15, B17, Cw1, Cw3, blood type B

Isoenzymes

G6PD, B, PGM1, 2, PGM3, 1-2, 6PGD, A, ES-D, 1

Oncogenes

Myc +, myb + , ras +, fos +, p53 +, sis -, abl -, ros -, src -

Mutational profile

LOVO cells carry a mutation in codon 13 of Kras gene: GGC(Wt Gly) >GAC(Asp)

Reverse transcriptase	Negative

Products

Carcinoembryonic antigen (CEA) 908 ng/106 cells/10 days

HANDLING AND CULTURE

Culture medium

Ham's F12K Medium, w: 2.0 mM L-Glutamine, w: 2.0 mM Sodium pyruvate, w: 2.5 g/L NaHCO3 (Cytion article number 820608a)

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.

Seeding density	1 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week
Post-thaw recovery	After thawing, plate the cells at 5 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 hours.

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	56 years

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