SK-OV-3

300342

GENERAL INFORMATION

Description

SK-OV-3 cells, also known as SKOV3 cells, were derived from the ascitic fluid of a 64-year-old Caucasian female with ovarian cancer, are used in the study of serous cystadenocarcinoma, a subtype of ovarian carcinoma. These cells are known for their resistance to tumor necrosis factor and various cytotoxic drugs, including cisplatin, highlighting the challenges in chemotherapy for ovarian cancer treatment and makes them an excellent model for studying the mechanisms underlying cisplatin resistance and exploring new therapeutic strategies.
The antioxidant system, including the thioredoxin antioxidant system (Trx), plays a crucial role in the survival and resistance of SK-OV-3 cells, offering a target for interventions aimed at sensitizing cancer cells to chemotherapy. The use of compounds like quercetin to modulate the antioxidant system and induce apoptosis in SK-OV-3 cells highlights the potential for dietary antioxidants in cancer therapy.
In addition to their role in studying drug resistance, SK-OV-3 cells are used to investigate the invasive behavior of ovarian carcinoma cells and the interaction between cancer cells and the tumor microenvironment, including the role of M0 and M2 macrophages in tumor progression.
The application of SK-OV-3 cells in cancer research extends to the development of xenograft models and the use of reporter genes, such as firefly-Luc, to monitor tumor growth and metastasis in vivo.
Overall, SK-OV-3 cells serve as a critical model for understanding the complexity of ovarian cancer, from the molecular mechanisms driving resistance and estrogen signaling to the interaction between cancer cells and the tumor microenvironment.

Tissue	Ovary
Disease	Serous cystadenocarcinoma
Metastatic site	Ascites

Synonyms

- SKOV-3
- SK-OV3
- SK.OV.3
- SKOV3
- Skov3
- SKO3

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Tumourigenic	Forms moderately well differentiated adenocarcinoma consistent with ovarian primary

Karyotype

(P16) hypodiploid to hypotetraploid with dicentrics and large telocentric

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IDENTIFIERS

Citation

SK-OV-3 (Cytion catalog number 300342)

NCBI TaxID	9606
Cellosaurus	CVCL_0532

EXPRESSION AND SUSCEPTIBILITY

Isoenzymes

PGM3, 1, PGM1, 1-2, ES-D, 1, Me-2, 1, AK-1, 1, GLO-1, 1-2, G6PD, B, Phenotype Frequency Product: 0.0311

HANDLING AND CULTURE

Culture medium

DMEM:Ham's F12 (1:1), w: 3.1 g/L Glucose, w: 2.5 mM L-Glutamine, w: 15 mM HEPES, w: 0.5 mM Sodium pyruvate, w: 1.2 g/L NaHCO3 (Cytion article number 820400a)

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
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	64 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

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