Product sheet

SK-OV-3 Cells | 300342

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.
Organism	Human
Tissue	Ovary
Disease	Serous cystadenocarcinoma
Metastatic site	Ascites
Synonyms	SKOV-3, SK-OV3, SK.OV.3, SKOV3, Skov3, SKO3

Age	64 years
Gender	Female
Ethnicity	Caucasian
Growth properties	Adherent

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Citation	SK-OV-3 (Cytion catalog number 300342)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0532

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
Tumorigenic	Forms moderately well differentiated adenocarcinoma consistent with ovarian primary
Karyotype	(P16) hypodiploid to hypotetraploid with dicentrics and large telocentric

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)
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.

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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.

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 x 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.

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.