Product sheet

SK-OV-3 Cells | 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 luciferase, 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

Characteristics

Age	64 years
Gender	Female
Ethnicity	Caucasian
Growth properties	Adherent

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Regulatory Data

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

Biomolecular Data

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

Handling

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)
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.
Split ratio	A ratio of 1:2 to 1:3 is recommended
Seeding density	1 x 10^4 cells/cm^2
Freeze medium	As a cryopreservation medium, 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.

Quality Control & Molecular Analysis

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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.

STR profile

Amelogenin: x,x
CSF1PO: 11
D13S317: 8,11
D16S539: 12
D5S818: 11
D7S820: 13,14
TH01: 9,9.3
TPOX: 8,11
vWA: 17,18
D3S1358: 14
D21S11: 30,31,31.2
D18S51: 16,17,18
Penta E: 5,13
Penta D: 12,13
D8S1179: 14,15
FGA: 24,25,26

HLA alleles

A*: '03:01:01, '68:01:02
B*: '18:01:01, '35:01:01
C*: '04:01:01, '05:01:01
DRB1*: '01:01:01, '03:01:01
DQA1*: '01:01:01, '05:01:01
DQB1*: '02:01:01, '05:01:01
DPB1*: '02:01:02G, '04:01:01G
E: '01:01:01, '01:06:01