Product sheet

OVCAR3 Cells | 300307

General information

Description	OVCAR-3 cells are a human ovarian cancer cell line established from the malignant ascites of a 60-year-old Caucasian female patient with progressive adenocarcinoma of the ovary, refractory to treatment with cyclophosphamide, adriamycin, and cisplatin. Ovcar 3 cells are used in a wide range of studies including drug resistance, particularly those involving DNA damage response biomarkers, homologous recombination repair, and the overall cell cycle dynamics, cancer cell biology, and gene expression studies. OVCAR-3 cells are epithelial in morphology and have been characterized by their high in vitro growth potential and their ability to form tumors in immunodeficient mice. These cells express several markers characteristic of ovarian carcinoma and have been utilized extensively to study the biology of ovarian cancer. OVCAR-3 cells are known to have a complex karyotype, with numerous chromosomal abnormalities that are typical of high-grade serous ovarian carcinomas. They are estrogen receptor-positive, which is relatively rare among ovarian cancer cell lines, and this feature is exploited in studies focusing on hormonal influences on ovarian cancer progression and treatment. In summary, the OVCAR3 cell line stands as a cornerstone in ovarian cancer research, offering a robust model for studying the complex interplay between hormonal influences, drug resistance, and the genetic underpinnings of high-grade ovarian serous adenocarcinoma.
Organism	Human
Tissue	Ovary
Disease	High grade ovarian serous adenocarcinoma
Metastatic site	Ascites
Synonyms	OVCAR-3, Ovcar-3, OVCAR.3, NIH:Ovcar-3, NIH:OVCAR3, NIH-OVCAR-3, NIHOVCAR3, OVCAR3, Ovcar3

Characteristics

Age	60 years
Gender	Female
Ethnicity	Caucasian
Growth properties	Adherent

Identifiers / Biosafety / Citation

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Citation	OVCAR3 (Cytion catalog number 300307)
Biosafety level	1

Expression / Mutation

Receptors expressed	Androgen, estrogen, progesterone
Isoenzymes	G6PD, B, PGM1, 1, PGM3, 1, ES-D, 1, AK-1, 1, GLO-1, 1
Tumorigenic	Yes, in nude mice
Ploidy status	Aneuploid

Handling

Culture Medium	RPMI 1640, w: 2.1 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Medium supplements	Supplement the medium with 10% FBS
Passaging solution	Accutase
Doubling time	40 to 60 hours
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 1:4 to 1:6 is recommended
Seeding density	2 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week

Freeze medium	CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)

Handling of cryopreserved cultures

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. Optionally, skip centrifugation but remove any remaining freezing medium after 24 hours.
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.

Quality control / Genetic profile / HLA

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.

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STR profile	**CSF1PO**: 11,12 **D13S317**: 12 **D16S539**: 12 **D5S818**: 11,12 **D7S820**: 10 **TH01**: 9,9.3 **TPOX**: 8 **vWA**: 17 **D3S1358**: 17,18 **D21S11**: 29,31.2 **D18S51**: 13 **Penta E**: 7,13 **Penta D**: 12,13 **D8S1179**: 10,15 **FGA**: 21
HLA alleles	**A***: 02:01:01, 29:02:01 **B***: 07:02:01, 58:01:01 **C***: 07:02:01, 07:18:01 **DRB1***: 08:01:01, 08:04:01 **DQA1***: 04:01:01, 04:01:02 **DQB1***: 04:02:01 **DPB1***: 02:01:02, 04:01:01 **E**: 01:01:01