OVCAR3

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.

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

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Tumourigenic	Yes, in nude mice
Ploidy status	Aneuploid
MSI status	Stable (MSS)
Doubling time	40 to 60 hours

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IDENTIFIERS

Citation

OVCAR3 (Cytion catalog number 300307)

NCBI TaxID	9606
Cellosaurus	CVCL_0465

EXPRESSION AND SUSCEPTIBILITY

Receptors expressed

Androgen, estrogen, progesterone

Isoenzymes

G6PD, B, PGM1, 1, PGM3, 1, ES-D, 1, AK-1, 1, GLO-1, 1

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 20% FBS and 0.01 mg/mL human insulin

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	2 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week

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	60 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