Product sheet

OVCAR-5 Cells | 305616

General information

Description	OVCAR-5 is a human ovarian carcinoma cell line established from the tumor of an untreated patient. This cell line serves as a robust model for studying the biology of high-grade ovarian cancers and is particularly valuable for investigating responses to platinum-based chemotherapeutics, as well as the molecular mechanisms underlying chemoresistance. OVCAR-5 has been extensively utilized in preclinical drug development and cancer biology research. OVCAR-5 cells display an epithelial morphology and grow as an adherent monolayer under standard culture conditions. Unlike other OVCAR series cell lines derived from chemoresistant patients, OVCAR-5 is derived from a chemotherapy-naive tumor, providing a baseline model for exploring intrinsic tumor properties. Notably, OVCAR-5 expresses metallothionein, a protein associated with cellular responses to heavy metals and oxidative stress, but this does not necessarily confer cisplatin resistance as observed in other cell lines of the series. The cell line has a cisplatin sensitivity profile distinct from those derived from chemoresistant patients, with an IC50 value of 0.61 µM for cisplatin. In research, OVCAR-5 is used to screen novel chemotherapeutics, evaluate targeted therapies, and study combinations of drugs aimed at improving treatment outcomes for ovarian carcinoma. It is also employed in exploring the genetic and epigenetic landscapes of high-grade ovarian cancers, including DNA damage repair pathways, signaling networks, and the tumor microenvironment. OVCAR-5 remains an important tool for advancing the understanding and treatment of ovarian cancer.
Organism	Human
Tissue	Ascites
Disease	Ovarian adenocarcinoma
Metastatic site	Ascites
Synonyms	OVCAR 5, NIH:OVCAR-5, OVCAR.5, OVCAR5, Ovcar5, OVCA5

Characteristics

Age	67 years
Gender	Female
Ethnicity	Caucasian
Growth properties	Adherent

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Regulatory Data

Citation	OVCAR-5 (Cytion catalog number 305616)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1628

Biomolecular Data

Mutational profile	Mutation: KRAS, Simple, p.Gly12Val (c.35G>T), Homozygous

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Doubling time	27 hours
Fluid renewal	2 to 3 times per week
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.

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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.

Quality Control & Molecular Analysis

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.