# OV-90

305849

## GENERAL INFORMATION

### Description

OV-90 is a human epithelial ovarian cancer (EOC) cell line derived from malignant ascites of an adult patient who had not received prior chemotherapy or radiation treatment. It belongs to a panel of spontaneously immortalized ovarian cancer cell lines that were developed to preserve key clinical and molecular features of the tumors from which they originated. OV-90, in particular, exhibits aggressive in vitro growth behavior that correlates with its clinical derivation from a patient with advanced disease. Cytogenetically, OV-90 cells carry mutations in tumor suppressor genes and oncogenes frequently implicated in ovarian cancer, including TP53 and BRCA2, as well as alterations in TGF-β receptor type II and CDKN2A. These mutations reflect the genomic instability commonly observed in high-grade serous ovarian carcinomas. Gene expression profiling of OV-90 reveals a distinct molecular signature consistent with its tumor origin. Comparative microarray analyses have shown that OV-90's transcriptomic profile diverges significantly from that of normal ovarian surface epithelium, with strong upregulation of genes involved in proliferation, DNA damage response, and invasion. Moreover, among the ovarian cancer lines studied, OV-90 clusters with other aggressive tumor-derived lines rather than with those derived from indolent disease, making it a useful model for investigating high-risk disease biology. Its expression patterns also align with clinical markers of poor prognosis, further supporting its utility in preclinical research focused on aggressive ovarian cancer subtypes.
In systems biology and pharmacogenomic studies, OV-90 has been included in large-scale transcriptomic and proteomic analyses, including the Cancer Cell Line Encyclopedia (CCLE) and proteomic atlases. These datasets reveal copy number alterations and gene expression changes that can be correlated with drug sensitivity, particularly to agents targeting DNA repair pathways or cell cycle regulators. The availability of this comprehensive multi-omic data, alongside OV-90's phenotypic and genetic fidelity to aggressive ovarian carcinoma, underscores its value in drug development, biomarker discovery, and mechanistic studies of ovarian cancer pathogenesis.

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| **Tissue** | Metastatic |
| **Disease** | Ovarian adenocarcinoma |

### Synonyms

- OV90

## CLASSIFICATION

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| **Organism** | Human |
| **Sex** | Female |
| **Growth properties** | Adherent |
| **Biosafety level** | 1 |

## CHARACTERISTICS

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| **Cell type** | Epithelial |
| **Tumourigenic** | Yes;<br>Yes, the cells are tumorigenic in nude mice and form colonies in soft agar |

### Karyotype

46, XX, der(1)t(1;10)(p36;p15), hsr(3)(p11), der(9;17)(q10;q10), der(10)t(10;17)(p15;p12p13), der(13)t(13;13)(p11;q14)

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| **Doubling time** | 1,5 days |

Cytion GmbH
Nikola-Tesla-Str. 3
69124 Heidelberg
Tel: +49 (0)6221 405780
info@cytion.com
cytion.com

Registered office Heidelberg
VAT ID: DE283292917
Local court Mannheim - HRB 714394
CEO / Geschäftsführer: Jonathan Steubing

Banking information
Sparkasse Heidelberg
IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

## IDENTIFIERS

### Citation

OV-90 (Cytion catalog number 305849)

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| **NCBI TaxID** | 9606 |
| **Cellosaurus** | CVCL_3768 |

## EXPRESSION AND SUSCEPTIBILITY

### Antigen expression

Keratin

### Oncogenes

Her2/neu+; p53 (mutated, Ser --> Arg mutation at exon 6, codon 215)

### Mutational profile

Mutation: Gene fusion, CDKN2D + HGNC, WDF years2, Name(s)=CDKN2D-WDF years2. Mutation, SMAD4, Simple, p.Arg445Ter (c.1333C>T), Homozygous. Mutation, TP53, Simple, p.Ser215Arg (c.643A>C), Homozygous

## HANDLING AND CULTURE

### Culture medium

Medium 199, w: 2.7 mM stable Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820101a)

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| **Incubation atmosphere** | 37°C, 5% $CO_2$, humidified atmosphere. |

### Supplements

Supplement the medium with 15% FBS

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| **Dissociation reagent** | Accutase |
| **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.

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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. |

### 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

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| **Donor age** | 64 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.

### Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

### 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.

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| **Material Transfer Agreement required** | Yes |