O-342

500305

GENERAL INFORMATION

Description

The O-342 cell line is derived from a rat ovarian tumor and is widely used in cancer research, particularly in studies focusing on ovarian cancer and chemotherapy resistance. This cell line is characterized by its ability to grow in a monolayer and enter log-phase growth approximately 24 hours after seeding, with a cell population doubling time of about 24 hours. The O-342 cell line serves as the parental line for several sublines, including the cisplatin-resistant O-342/DDP subline, which was developed through the stepwise increase of cisplatin concentrations in vitro.

O-342 cells exhibit heteroploidy in their chromosomal structure, which contrasts with the near-diploid karyotype observed in the O-342/DDP subline. This karyotypic change is indicative of the selective pressure exerted by continuous cisplatin exposure, which eliminates the cisplatin-sensitive subpopulation, resulting in the predominance of resistant cells. Biochemical analyses have shown that the O-342/DDP cells possess a 33-fold increase in resistance to cisplatin compared to the parental O-342 cells. This resistance is reflected in the ID50 values, with the O-342/DDP cells having an ID50 of 33 µM compared to 1 µM in the O-342 cells.

Further studies have revealed that the O-342/DDP cells have significantly higher levels of intracellular total glutathione (GSH+GSSG) at 3.04 nmol/10^6 cells, compared to 1.37 nmol/10^6 cells in the O-342 cells. The increased glutathione levels are associated with enhanced detoxification capabilities, contributing to the chemoresistance observed in the O-342/DDP cells. Additionally, following cisplatin treatment, DNA interstrand crosslinks and single-strand breaks are markedly higher in the parental O-342 cells than in the resistant O-342/DDP cells, indicating an increased DNA repair capacity in the resistant subline.

Overall, the O-342 cell line, along with its cisplatin-resistant subline O-342/DDP, provides a robust model for investigating the mechanisms of chemoresistance in ovarian cancer. These cell lines are invaluable for identifying potential therapeutic targets and developing strategies to overcome resistance to chemotherapy, thereby improving treatment outcomes for ovarian cancer patients.

Tissue	Ovary
Disease	Adenocarcinoma

CLASSIFICATION

Organism	Rat
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like

IDENTIFIERS

Citation

O-342 (Cytion catalog number 500305)

NCBI TaxID	10116
Cellosaurus	CVCL_5847

HANDLING AND CULTURE

Culture medium

EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)

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

Supplements

Supplement the medium with 10% FBS and 1% NEAA

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.

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

Breed / subspecies	BDIx

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.

Material Transfer Agreement required	Yes

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