Data Sheet

OVCAR-3 Human Ovarian Cancer Cell Line

SCC257

Pack Size ≥ 1x10^6 viable cells/vial

Store in liquid nitrogen.

FOR RESEARCH USE ONLY
Not for use in diagnostic procedures. Not for human or animal consumption.

Background

Ovarian carcinoma is a prevalent worldwide disease, with over 200,000 new cases diagnosed per year.[1] The first-line chemotherapy for newly-diagnosed ovarian carcinoma is cisplatin, but despite high initial efficacy, the most common types of ovarian carcinomas frequently relapse into platinum-resistant forms and many demonstrate multi-drug resistance.[1] The availability of cellular models that recapitulate both resistant and susceptible forms of the disease are essential to understanding drug resistance and advancing new options for treatment.

OVCAR-3 is a high-grade serous ovarian adenocarcinoma cell line established from a patient refractory to cisplatin, however the cell line remains sensitive to a variety of chemotherapeutic drugs.[2] OVCAR-3 cells demonstrate increased glutathione content3 and express the Wilms Tumor 1 protein (WT1), a marker of advanced serous ovarian carcinoma.[4] OVCAR-3 cells are characterized by migration/invasion ability and are tumorigenic in nude mice.[5] The OVCAR-3 cell line is well-established and one of the most highly-cited model systems for ovarian carcinoma.

Source

The OVCAR-3 was established from ascitic fluid from a 60-year-old patient with ovarian cancer refractory to cisplatin treatment.[2]

Short Tandem Repeat

D3S1358: 17, 18	D16S539: 12
TH01: 9	CSF1PO: 11, 12
D21S11: 29, 31.2	Penta D: 12, 13
D18S51: 13	vWA: 17
Penta E: 7, 13	D8S1179: 10, 15
D5S818: 11, 12	TPOX: 8
D13S317: 12	FGA: 21
D7S820: 10	Amelogenin: X

Cancer cell lines are inherently genetically unstable. Genetic instability may arise in the form of loss of heterozygosity of alleles at one or more genetic sites with increased passages.

Quality Control Testing

- Each vial contains ≥ $1x10^6$ viable cells.
- Cells tested negative for infectious diseases using a Human Essential CLEAR panel by Charles River Animal Diagnostic Services.
- Cells are verified to be of human origin and negative for inter-species contamination from mouse, rat, chinese hamster, Golden Syrian hamster, and non-human primate (NHP) as assessed using a Contamination Clear panel by Charles River Animal Diagnostic Services.
- Cells are negative for mycoplasma contamination.

Storage and Handling

The OVCAR-3 cells should be stored in liquid nitrogen. The cells can be cultured for at least 10 passages after initial thawing without significantly affecting the cell marker expression and functionality.

Representative Data

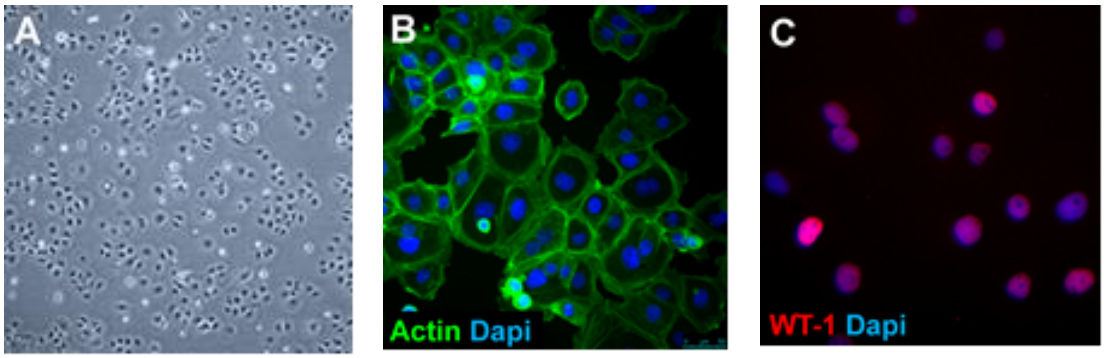

Figure 1. (**A**) Bright-field image of OVCAR-3 cells one day after thaw. (**B**) OVCAR-3 cells express actin (P5282) and (**C**) WT1 (Abcam, ab89901).

Protocols

Thawing of Cells

1. Do not thaw the cells until the recommended medium is on hand. Cells can grow on normal tissue cultureware surfaces without any additional coating.

   OVCAR-3 Expansion Medium: Cells are thawed and expanded in OVCAR-3 Expansion Medium comprised of RPMI-1640 (R8758) supplemented with 2 mM glutamine (TMS-002-C), 10% FBS (ES-009-B), 0.25 U/mL insulin (407709), and 1X Penicillin/Streptomycin (TMS-AB2-C).

   Note: Insulin (407709) is insoluble from pH 4.5-7.0 and must be adjusted with HCl to pH 2-3 in order to dissolve. Below is the protocol to dissolve the insulin:

   - To make a 10 mg/mL stock solution, add 5 mL sterile water to the 50 mg bottle.
   - Add 0.1 N HCl dropwise while mixing until the insulin powder is dissolved.
   - Check that the pH is between 2-3.
   - Filter the solution though a 0.2 µM filter and store at 2-8 °C.
2. Remove the vial of frozen OVCAR-3 cells from liquid nitrogen and incubate in a 37 °C water bath. Closely monitor until the cells are completely thawed. Maximum cell viability is dependent on the rapid and complete thawing of frozen cells.

   Important: Do not vortex the cells.

3. As soon as the cells are completely thawed, disinfect the outside of the vial with 70% ethanol. Proceed immediately to the next step.
4. In a laminar flow hood, use a 1 or 2 mL pipette to transfer the cells to a sterile 15 mL conical tube. Be careful not to introduce any bubbles during the transfer process.
5. Using a 10 mL pipette, slowly add dropwise 9 mL of OVCAR-3 Expansion Medium (Step 1 above) to the 15 mL conical tube.

   Important: Do not add the entire volume of media all at once to the cells. This may result in decreased cell viability due to osmotic shock.
6. Gently mix the cell suspension by slowly pipetting up and down twice. Be careful not to introduce any bubbles.

   Important: Do not vortex the cells.
7. Centrifuge the tube at 300 x *g* for 2-3 minutes to pellet the cells.
8. Decant as much of the supernatant as possible. Steps 5-8 are necessary to remove residual cryopreservative (DMSO).
9. Resuspend the cells in 15 mL of OVCAR-3 Expansion Medium.
10. Transfer the cell mixture to a T75 tissue culture flask.
11. Incubate the cells at 37 °C in a humidified incubator with 5% CO_2.

Subculturing of Cells

1. Do not allow the cells to grow to confluency. OVCAR-3 cells should be passaged at ~80-85% confluence.

   Carefully remove the medium from the T75 tissue culture flask containing the 80% confluent layer of OVCAR-3 cells.
2. Rinse the flask with 10 mL 1X PBS. Aspirate after the rinse.
3. Apply 5-7 mL of Accutase® and incubate in a 37 °C incubator for 3-5 minutes.
4. Inspect the flask and ensure the complete detachment of cells by gently tapping the side of the flask with the palm of your hand.
5. Add 5-7 mL of OVCAR-3 Expansion Medium to the plate.
6. Gently rotate the flask to mix the cell suspension. Transfer the dissociated cells to a 15 mL conical tube.
7. Centrifuge the tube at 300 x *g* for 3-5 minutes to pellet the cells.
8. Discard the supernatant, then loosen the cell pellet by tapping the tip of the tube with a finger.
9. Apply 2-5 mL of OVCAR-3 Expansion Medium to the conical tube and resuspend the cells thoroughly.

   Important: Do not vortex the cells.
10. Count the number of cells using a hemocytometer.
11. Plate the cells to the desired density. Recommended split ratio is 1:5.

Cryopreservation of Cells

The OVCAR-3 Human Ovarian Carcinoma Cells may be frozen in OVCAR-3 Expansion Medium and 10% DMSO using a Nalgene® slow freeze Mr. Frosty® container.

References

1. Nat Rev Disease Primers 2016; 2:16061.
2. Cancer Res 1997; 57:850—856.
3. Proc Natl Acad Sci USA 1992; 89:3070-3074.
4. BMC Cancer 2006; 6:90.
5. Gynecol Oncol 2015;138(2):372-377.

Academic Use Agreement

Subject to local law

THIS PRODUCT MAY ONLY BE USED BY INDIVIDUALS EMPLOYED BY AN ACADEMIC INSTITUTION AND IS INTENDED SOLELY TO BE USED FOR ACADEMIC RESEARCH, WHICH IS FURTHER DEFINED BELOW. BY OPENING THIS PRODUCT, YOU ("PURCHASER") HEREBY REPRESENT THAT YOU HAVE THE RIGHT AND AUTHORITY TO LEGALLY BIND YOURSELF AND/OR YOUR EMPLOYER INSTITUTION, AS APPLICABLE, AND CONSENT TO BE LEGALLY BOUND BY THE TERMS OF THIS ACADEMIC USE AGREEMENT. IF YOU DO NOT AGREE TO COMPLY WITH THESE TERMS, YOU MAY NOT OPEN OR USE THE PRODUCT AND YOU MUST CALL CUSTOMER SERVICE (1-800-645-5476) TO ARRANGE TO RETURN THE PRODUCT FOR A REFUND.

"Product" means OVCAR-3 Human Ovarian Cancer Cell Line (SCC257).

"Academic Research" means any internal in vitro research use by individuals employed by an academic institution. Academic Research specifically excludes the following uses of whatever kind or nature:

- Re-engineering or copying the Product
- Making derivatives, modifications, or functional equivalents of the Product
- Obtaining patents or other intellectual property rights claiming use of the Product
- Using the Product in the development, testing, or manufacture of a Commercial Product
- Using the Product as a component of a Commercial Product
- Reselling or licensing the Product
- Using the Product in clinical or therapeutic applications including producing materials for clinical trials
- Administering the Product to humans
- Using the Product in collaboration with a commercial or non-academic entity

"Commercial Product" means any product intended for: (i) current or future sale; (ii) use in a fee-for-service; or (iii) any diagnostic, clinical, or therapeutic use.

Access to the Product is limited solely to those officers, employees, and students of PURCHASER's academic institution who need access to the Product to perform Academic Research. PURCHASER shall comply with all applicable laws in its use and handling of the Product and shall keep it under reasonably safe and secure conditions to prevent unauthorized use or access.

These use restrictions will remain in effect for as long as PURCHASER possesses the Product.

COMMERCIAL OR NON-ACADEMIC ENTITIES INTERESTED IN PURCHASING OR USING THE PRODUCT MUST CONTACT licensing@emdmillipore.com AND AGREE TO SEPARATE TERMS OF USE PRIOR TO USE OR PURCHASE.

Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

Technical Assistance

Visit the tech service page at SigmaAldrich.com/techservice.

Terms and Conditions of Sale

Warranty, use restrictions, and other conditions of sale may be found at SigmaAldrich.com/terms.

Contact Information

For the location of the office nearest you, go to SigmaAldrich.com/offices.

Document Template 20306518 Ver 6.0

20509622 Ver 2.0, Rev 22SEP2024, DP