IGROV-1 Human Ovarian Cancer Cell Line

Cancer Cell Line

Cat. # SCC203

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.

Data Sheet

Background

Ovarian cancer is prevalent worldwide, with over 225,000 new cases diagnosed annually.[1] Epithelial carcinomas constitute over 90% of ovarian cancers. Platinum-based chemotherapy is the standard first-line treatment for newly-diagnosed ovarian carcinomas and shows high initial effectiveness, but the most commonly diagnosed ovarian carcinomas frequent relapse into platinum-resistant forms, highlighting the importance of understanding the evolution of drug resistance in these cancers.

The IGROV-1 cell line is well-established as a model for drug-resistant ovarian carcinoma. IGROV-1 cells lack hormone receptors and exhibit low to moderate sensitivity to several common chemotherapeutic agents, while remaining sensitive to cisplatin.[2] IGROV-1 cells harbor a paracentric inversion of chromosome 3 and a translocation between chromosomes 2 and 5.[2] The IGROV-1 cell line exhibits hypermutation and has an overall mutation profile similar to endometrioid carcinoma.[3] IGROV-1 cells appear in culture as confluent monolayers and are highly tumorigenic *in vivo*, forming solid tumors within 15 days in nude mice.[2] IGROV-1 cells are characterized by expression of vitronectin and αvβ3 integrin, essential for the observed migratory behavior of these cells toward ECM proteins,[4] and express the cancer-associated target MDM2.[5] The IGROV-1 human ovarian carcinoma cell line is a versatile model for ovarian carcinoma and investigation of drug resistance.

Source

IGROV-1 cells were established from a stage III ovarian solid primary tumor of a 47-year-old female patient.[2]

Short tandem repeat (STR) Profile

D3S1358: 13, 14, 15	D16S539: 10, 11, 12, 13
TH01: 7, 9.3	CSF1PO: 11, 12, 13, 14, 15, 16
D21S11: 26, 30.2, 31.2	Penta D: 8, 10
D18S51: 14, 15, 16	vWA: 16, 17, 20, 21, 22
Penta E: 13, 17	D8S1179: 13, 14, 15, 16, 17
D5S818: 11, 12, 13	TPOX: 8, 11
D13S317: 8, 10	FGA: 21, 25, 26
D7S820: 10, 10.1, 10.3, 11.1	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. IGROV-1 has a "hypermutator" phenotype[3], consistent with the additional alleles present in multiple loci.

Quality Control Testing

- Each vial contains ≥ $1X10^6$ viable cells.
- Cells are tested negative for infectious diseases by 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 rat, mouse, chinese hamster, Golden Syrian hamster, and non-human primate (NHP) as assessed by a Contamination CLEAR panel by Charles River Animal Diagnostic Services.
- Cells are negative for mycoplasma contamination.
- Each lot of cells is genotyped by STR analysis to verify the unique identity of the cell line.

Storage & Handling

IGROV-1 human ovarian adenocarcinoma cell line 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

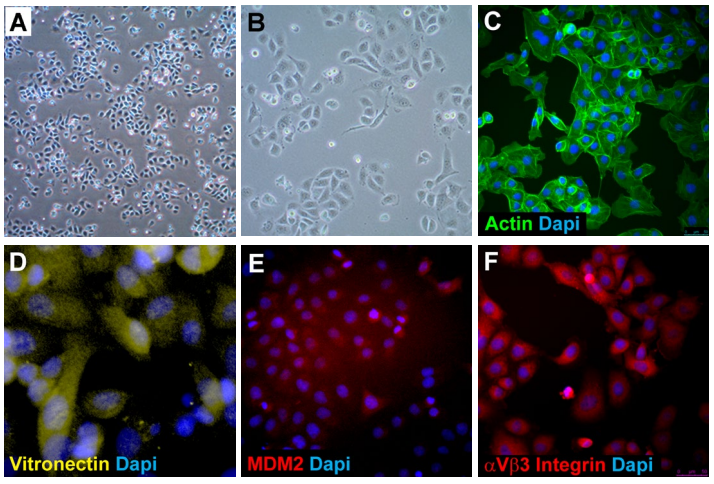

Figure 1. IGROV-1 cells one day (**A, B,** lower & higher magnification, respectively) after thawing in a T75 flask. Cells express actin (**C**, Phalloidin-FITC; Sigma P5282), vitronectin (**D**), the tumor marker MDM2, a E3 ubiquitin ligase (**E**, Millipore 04-1530) and αVβ3 integrin (**F**, Millipore MAB1876). Staining for MDM2 is faint which may indicate that MDM2 expression is low.

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Protocols

Thawing 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.

   IGROV-1 Expansion Medium: cells are thawed and expanded in DMEM-High Glucose (Cat. No. SLM-120-B) supplemented with 10% FBS (Cat. No. ES-009-B).
2. Remove the vial of frozen IGROV-1 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 IGROV-1 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 IGROV-1 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 Cells

1. Do not allow the cells to grow to confluency. IGROV-1 cells should be passaged at ~80-85% confluence.
2. Carefully remove the medium from the T75 tissue culture flask containing the IGROV-1 cells.
3. 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 IGROV-1 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 IGROV-1 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. Typical split ratio is 1:6.

Cryopreservation of Cells

IGROV-1 human ovarian adenocarcinoma cell line may be frozen in the expansion medium plus 10% DMSO using a Nalgene slow freeze Mr. Frosty container.

References

1. *Nat Rev Disease Primers.* 2016; 2: 16061.
2. *Cancer Res.* 1985; 45(10): 4970-4979.
3. *Nat Commun.* 2013; 4: 2126.
4. *Int J Cancer.* 1999: 80(2): 285-294.
5. *Int J Cancer.* 1996: 68(1): 67-74.

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