Product sheet

ES-2 Cells | 305038

General information

Description	The ES-2 cell line is derived from a poorly differentiated ovarian clear cell carcinoma, offering a unique in vitro model to study the biological behaviors and treatment responses of this aggressive cancer subtype. Originally cultured in soft agar, a method favoring the growth of cancer cells while suppressing fibroblast growth, ES-2 cells provide a robust system for analyzing tumor cell interactions and drug resistance mechanisms in a three-dimensional matrix that closely mimics the in vivo environment. Pharmacologically, ES-2 cells display low to moderate resistance to several chemotherapeutic agents, including doxorubicin, cisplatin, carmustine, etoposide, and cyanomorpholinodoxorubicin (MRA-CN). This resistance profile makes ES-2 an essential tool for oncology research, particularly in the development and testing of new chemotherapeutic regimens and combination therapies. Furthermore, the expression of P-glycoprotein in ES-2 cells is low, which is significant as P-glycoprotein is often implicated in the efflux of drugs from cancer cells, contributing to multidrug resistance. Studying ES-2 cells can therefore provide insights into overcoming drug resistance in ovarian clear cell carcinomas.
Organism	Human
Tissue	Ovary
Disease	Ovarian clear cell adenocarcinoma
Synonyms	ES2

Characteristics

Age	47 years
Gender	Female
Ethnicity	European
Morphology	Fibroblast
Growth properties	Adherent

Regulatory Data

Citation	ES-2 (Cytion catalog number 305038)
Biosafety level	1

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NCBI_TaxID	9606
CellosaurusAccession	CVCL_3509

Biomolecular Data

Protein expression	P Glycoprotein
Tumorigenic	Yes

Handling

Culture Medium	McCoys 5a, w: 3.0 g/L Glucose, w: stable Glutamine, w: 2.0 mM Sodium pyruvate, w: 2.2 g/L NaHCO3 (Cytion article number 820200a)
Supplements	Supplement the medium with 10% FBS
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
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.

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.