Product description

The NCI/ADR-RES cell line is a multidrug-resistant human ovarian cancer cell line derived from the OVCAR-8 parental line. It is widely used in cancer research to investigate mechanisms of chemoresistance, particularly those involving the overexpression of the MDR1 gene, which encodes the drug efflux transporter P-glycoprotein. This cell line is part of the NCI-60 panel developed by the U.S. National Cancer Institute and serves as a valuable model for evaluating anticancer agents and studying strategies to overcome multidrug resistance. Notably, NCI/ADR-RES was previously misidentified as a derivative of the MCF-7 breast cancer cell line and referred to as MCF-7/ADR, a misclassification that was later corrected through molecular and genomic profiling.

Name: NCI-ADR/RES cell line

Organism: Human

Disease: Cancer

Cancer detailed: High grade ovarian serous adenocarcinoma

Production detail: The MCF-7/ADR cell line was first described in 1986 by Batist et al., who developed it by exposing the MCF-7 breast cancer cell line (mis-identified) to increasing concentrations of the chemotherapeutic drug adriamycin (doxorubicin). This process led to the selection of a stable, multidrug-resistant subline that overexpressed P-glycoprotein (MDR1/ABCB1), making it a widely used model for studying drug resistance in cancer.

Tissue: Ovary

Donor: Female, 64 Years

Parent cell line: OVCAR-8

Growth properties: Adherent

Cellosaurus ID: (CVCL_1452)

Biosafety level: 1

Contributor(s)

Inventor: Kenneth H. Cowan
Institute: National Cancer Institute

Properties

Product format: Frozen

Unpacking and storage:

1. Check all containers for leakage or breakage.
2. Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below -130°C, preferably in liquid nitrogen vapor, until ready for use.

Recommended medium: RPMI 1640 + 10% FBS + 50 U/mL Penicillin + 50 µg/mL Streptomycin + 1.84 µM Doxorubicin (to maintain resistance phenotype).

Culture conditions: 37.0°C ± 1.0°C humidified incubator with 5.0% CO_2

Cryopreservation medium: 10% DMSO in FBS

Handling instructions

1. Please ensure that vials are frozen when received, and store at **<-130 °C long term**. When removing frozen cells from storage, it is important to minimize exposure to room temperature (15 - 25°C). If not proceeding directly to thawing, place the cells on dry ice or in a liquid nitrogen container.
2. **Do not thaw at room temperature.** To thaw, swirl the vial quickly in a 37 °C water bath with O-ring and cap above the water to avoid contamination. Remove from the water bath with a small ice pellet remaining (this should not take more than 2 minutes) and wipe the exterior with 70% ethanol or isopropanol before transferring to a biosafety cabinet. Further steps should be conducted under aseptic conditions.
3. We strongly recommend that the volume of cell suspension is measured, and a 20 uL aliquot be set aside at this point for a viable cell count using trypan blue or similar dye.
9. Transfer contents to a 15 mL conical tube containing 9 mL of warm complete medium.
10. Centrifuge at 1000 rpm for 5 minutes to remove DMSO.
11. Discard supernatant and gently resuspend the pellet in fresh complete medium.
12. Seed cells into a T25 or T75 flask with 5–10 mL of medium. Place in 37°C, 5% CO_2 incubator. Change medium after 24 hours to remove residual DMSO and dead cells.
13. Subculture routine: Split 1:3 to 1:6 at ~80% confluency (every 2-3 days) using 0.25% Trypsin-EDTA for detachment at 37 °C for 5 minutes.

References

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Material Citation

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