Product sheet

A2780 Cells | 300491

General information

Description	A2780 is a human ovarian cancer cell line that was first established in 1972 from a patient with advanced epithelial ovarian cancer. The cells were characterized as being sensitive to cisplatin and doxorubicin, two commonly used chemotherapy drugs for ovarian cancer. Since its establishment, A2780 has been widely used in cancer research studies, particularly in the development and testing of new cancer treatments. Research using A2780 cells has provided valuable insights into the biology of ovarian cancer, including the identification of specific genetic mutations such as TP53 and BRCA1. These mutations are associated with increased risk of ovarian cancer and are also found in other types of cancer. Additionally, A2780 cells have been used to study the role of angiogenesis, the process by which new blood vessels form, in ovarian cancer progression and to evaluate the efficacy of anti-angiogenic drugs. Angiogenesis plays a critical role in the growth and progression of ovarian cancer as it provides oxygen and nutrients for the cancer cells to grow. Studies using A2780 cells have demonstrated the overexpression of pro-angiogenic factors such as VEGF and angiopoietin-2, which promote the formation of new blood vessels. Additionally, A2780 cells have been used to test the efficacy of anti-angiogenic drugs such as bevacizumab, which target VEGF and inhibit the formation of new blood vessels. Furthermore, A2780 cells have been used to evaluate the efficacy of various therapeutic agents, including chemotherapy drugs, targeted therapies such as PARP inhibitors, and immunotherapies. In particular, A2780 cells have been used to study the effect of different drug combinations on cancer cell proliferation, apoptosis, and drug resistance. Overall, the A2780 cell line has played a significant role in the advancement of ovarian cancer research, providing a valuable tool for understanding the disease and developing new treatments.
Organism	Human
Tissue	Ovary
Metastatic site	Primary tumor site (ovary)
Applications	Ovarian cancer research; cisplatin sensitivity baseline model; PARP inhibitor evaluation; DNA damage response; platinum-based chemotherapy studies; xenograft models
Synonyms	A-2780, 2780, A2780S

Characteristics

Age	Unspecified
Gender	Female

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Morphology	Epithelial-like
Cell type	Epithelial cells
Growth properties	Adherent

Regulatory Data

Citation	A2780 (Cytion catalog number 300491)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0134
GMO Status	No genetic modification; wildtype ovarian endometrioid carcinoma; parental line for A2780/DDP cisplatin-resistant derivative

Biomolecular Data

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Subculturing	Gather the suspension cells in a 15 ml tube and gently wash the adherent cells with PBS lacking calcium and magnesium (use 3-5 ml for T25 flasks and 5-10 ml for T75 flasks). Apply Accutase (1-2 ml for T25 flasks, 2.5 ml for T75 flasks) ensuring full coverage of the cell layer. Allow the cells to incubate at room temperature for 10 minutes. Following incubation, combine and centrifuge both the suspension and adherent cells. After centrifugation, carefully resuspend the cell pellet and transfer the cell suspension into new flasks containing fresh medium.
Split ratio	1 to 5

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Seeding density	1 to 3 × 10^4 cells/cm^2
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.