SW-403

300350

GENERAL INFORMATION

Description

SW-403 is a human colorectal adenocarcinoma cell line derived from a poorly differentiated tumor. It has been widely used in research on colorectal cancer, particularly in studies investigating the effects of gastrointestinal hormones on tumor growth. Notably, SW-403 cells have been shown to respond to gastrin and pentagastrin, two gastrointestinal hormones, by increasing their proliferation. These hormones stimulate growth through the gastrin receptor, which is expressed in some colorectal cancers. In contrast, treatment with proglumide, a gastrin receptor antagonist, inhibits the growth of SW-403 cells both in vitro and in vivo, suggesting that gastrin may play a role in promoting tumor growth in this cell line.

In addition to hormone studies, SW-403 cells have been used to investigate the effects of various chemotherapy agents, such as ciprofloxacin, on cancer cell proliferation and apoptosis. Ciprofloxacin has been shown to inhibit DNA synthesis in SW-403 cells and induce apoptosis in a dose-dependent manner. This process involves mitochondrial membrane breakdown, activation of caspases 3, 8, and 9, and upregulation of pro-apoptotic proteins like Bax. The ability of ciprofloxacin to trigger apoptosis in SW-403 cells suggests its potential as an adjunctive therapeutic agent in colorectal cancer treatment.

Overall, SW-403 serves as a useful model for exploring the molecular mechanisms underlying colorectal cancer growth, hormone sensitivity, and chemotherapy-induced apoptosis. Its response to gastrointestinal hormones like gastrin and to chemotherapeutic agents highlights its relevance in both basic cancer biology and drug development research.

Tissue	Colon
Disease	Adenocarcinoma

Synonyms

- SW403
- SW 403

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Tumourigenic	Yes, in nude mice

IDENTIFIERS

Citation

SW-403 (Cytion catalog number 300350)

NCBI TaxID	9606
Cellosaurus	CVCL_0545

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EXPRESSION AND SUSCEPTIBILITY

Antigen expression

Colon antigen 3, positive. The cells are positive for keratin by immunoperoxidase staining. CSAp negative (CSAp-).

Isoenzymes

G6PD, B, PGM1, 1, PGM3, 1-2, 6PGD, A, ES-D, 1, PEP-D, 1

Mutational profile

SW-403 cells carry a heterozygous Kras mutation in codon12: GGT>GTT

Reverse transcriptase	Negative

Products

Carcinoembryonic antigen (CEA) 155 ng/10 exp6 cells/10 days, keratin

HANDLING AND CULTURE

Culture medium

Ham's F12, w: 1.0 mM stable Glutamine, w: 1.0 mM Sodium pyruvate, w: 1.1 g/L NaHCO3 (Cytion article number 820600a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

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	1 to 2 times per week

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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.

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.

DONOR

Donor age	51 years
Ethnicity	Caucasian

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes

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