A-253

305524

GENERAL INFORMATION

Description

The A-253 cell line is a human epithelial cell line derived from an epidermoid carcinoma of the submaxillary salivary gland. This cell model is widely used to study salivary gland pathophysiology, especially in the context of autoimmune conditions like Sjögren's syndrome (SS). SS is a chronic autoimmune disease affecting exocrine glands, leading to symptoms of dry mouth (xerostomia) and dry eyes (keratoconjunctivitis sicca), as well as glandular tissue damage. In A-253 cells, studies have shown that certain autoantibodies present in SS patients, such as anti-Ro and anti-La, can trigger apoptosis through both intrinsic and extrinsic pathways. This occurs via interactions with Fc gamma (Fcγ) receptors on the cell surface, leading to internalization of these autoantibodies and activation of apoptotic signaling cascades involving caspases, specifically caspase-3, caspase-8, and caspase-9.

Research has also explored the effects of herbal polysaccharides on the A-253 cell line, particularly from Dendrobium officinale, which has shown potential protective effects against apoptosis induced by tumor necrosis factor-alpha (TNF-α). When pre-treated with these polysaccharides, A-253 cells exhibit a reduction in TNF-α-induced apoptotic markers, such as decreased reactive oxygen species (ROS) production, preserved mitochondrial membrane potential, and reduced translocation of nuclear factor-kappa B (NF-κB) to the nucleus. These observations suggest a potential role for such polysaccharides in mitigating immune-related damage in salivary glands and in providing a novel therapeutic angle for autoimmune diseases like SS, where excessive apoptosis contributes to glandular dysfunction and inflammation.

Overall, A-253 cells serve as an important model for understanding salivary gland cell apoptosis and the molecular mechanisms underlying autoimmune salivary gland damage. This includes the study of caspase activation, mitochondrial destabilization, and pro-inflammatory cytokine effects, which are relevant both in Sjögren's syndrome and in broader investigations into epithelial cell resilience and immune interactions.

Tissue	Submandibular glands
Disease	Squamous cell carcinoma

Synonyms

- A 253
- A253

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial
Tumourigenic	Yes, in nude mice and anti thymocyte serum treated newborn mice

IDENTIFIERS

Citation

A-253 (Cytion catalog number 305524)

NCBI TaxID	9606

Cytion GmbH
Nikola-Tesla-Str. 3
69124 Heidelberg
Tel: +49 (0)6221 405780
info@cytion.com
cytion.com

Registered office Heidelberg
VAT ID: DE283292917
Local court Mannheim - HRB 714394
CEO / Geschäftsführer: Jonathan Steubing

Banking information
Sparkasse Heidelberg
IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

Cellosaurus	CVCL_1060

HANDLING AND CULTURE

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)

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.

Seeding density	2-4*10^4/cm²

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	54 years
Ethnicity	European

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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