GES-1

305428

GENERAL INFORMATION

Description

GES-1 is a human gastric epithelial cell line commonly used in research focused on the gastric mucosa, particularly in studies exploring gastric diseases, inflammation, and cytotoxic responses. These cells are derived from normal gastric tissue and provide an in vitro model for investigating the effects of environmental toxins, drugs, and pathogens on gastric epithelial cells.
One significant area of research utilizing GES-1 involves studying the cytotoxic effects of environmental pollutants, such as nanoplastics, on human gastric cells. For example, polystyrene nanoplastics (PS-NPs) have been shown to enter GES-1 cells via endocytosis, inducing cellular stress responses such as autophagy, apoptosis, and decreased cell proliferation. These particles were found to accumulate in vesicles, autophagosomes, and lysosomes, indicating their internalization and cytotoxic potential within gastric epithelial cells. Additionally, studies have shown that inhibiting pathways like the RhoA/F-actin signaling pathway reduces the internalization of these nanoplastics, which helps in understanding the molecular mechanisms governing cellular uptake and response to foreign particles.
GES-1 cells are also used to investigate the protective effects of various compounds against gastric injuries. For instance, the traditional medicinal plant Fallopia denticuta has demonstrated protective effects on GES-1 cells against ethanol-induced damage. The study showed that extracts of this plant enhanced the proliferation of GES-1 cells and reduced oxidative stress and inflammation, which are key contributors to gastric ulcer development. This makes GES-1 an important tool for exploring both cytotoxic mechanisms and potential protective treatments in gastric health research.

Tissue	Fetal Stomach

Synonyms

- GES1

CLASSIFICATION

Organism	Human
Sex	Unspecified
Growth properties	Adherent
GMO status	GMO-S1

GMO status details

GMO-S1: This human gastric epithelial cell line contains an SV40 large T-antigen construct enabling immortalization for gastric biology studies. This classification applies only within Germany and may differ elsewhere.

Biosafety level	2

CHARACTERISTICS

Cell type	Epithelial cell
Tumourigenic	No (tested in nude mice)

IDENTIFIERS

Citation

GES-1 (Cytion catalog number 305428)

NCBI TaxID	9606

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Banking information
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Cellosaurus	CVCL_EQ22

EXPRESSION AND SUSCEPTIBILITY

Viruses

Transformant: Simian virus 40 (SV40)

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

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

Supplements

Supplement the medium with 10% FBS

Dissociation reagent	Accutase

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	9 fetal months

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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