NCI-H716

305079

GENERAL INFORMATION

Description

The NCI-H716 cell line is a human adenocarcinoma cell line derived from the colon. It was established from the metastatic site in the ascites of a 33-year-old Caucasian male. One of the defining features of the NCI-H716 cell line is its ability to express and secrete enteroendocrine hormones, notably glucagon-like peptide 1 (GLP-1), which makes it highly relevant in the study of gut hormone physiology and the enteroendocrine system. This aspect is crucial for diabetes research, especially in the context of investigating the hormonal regulation of insulin secretion and glucose homeostasis.

These cells are adapted to grow as floating aggregates or in suspension culture, which is somewhat unusual for epithelial-derived cells. The ability to grow in suspension allows the study of cellular interactions and signaling pathways in a three-dimensional culture environment, which can mimic in vivo conditions more closely than traditional monolayer cultures. The NCI-H716 cell line has been utilized extensively to explore signal transduction pathways involved in the secretion of hormones, response to pharmacological agents, and the interaction between gut epithelial cells and the microbiota. Studies using this cell line have contributed significantly to understanding the pathophysiology of gastrointestinal diseases and the development of therapeutic strategies targeting the gut-brain axis.

Furthermore, NCI-H716 cells are used to test therapeutic compounds for their potential effects on secretion and receptor response. Their unique hormonal profile also enables their use in pharmacodynamic studies and drug discovery related to metabolic disorders and obesity. Thus, NCI-H716 serves as a vital tool in translational medicine, bridging basic research and clinical applications in gastrointestinal and metabolic diseases.

Tissue	Cecum
Disease	Cecum adenocarcinoma
Metastatic site	Ascites

Synonyms

- NCI H716
- NCI-H716
- H-716
- NCIH716

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent and suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial
Doubling time	50 hours

IDENTIFIERS

Citation

NCI-H716 (Cytion catalog number 305079)

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Banking information
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BIC: SOLADES1HDB

NCBI TaxID	9606
Cellosaurus	CVCL_1581

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

Subculturing

Gently homogenize the cell suspension in the flask by pipetting up and down, then take a representative sample to determine the cell density per ml. Dilute the suspension to achieve a cell concentration of 1 x 10^5 cells/ml with fresh culture medium, and aliquot the adjusted suspension into new flasks for further cultivation.

Seeding density	> 3 x 10^5 cells/ml
Fluid renewal	Add 1 ml of fresh medium daily, weekends may be omitted, and separate clusters by pipetting as required.

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	33 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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