NUGC-4

305645

GENERAL INFORMATION

Description

NUGC-4 is a human gastric cancer cell line established from metastatic paragastric lymph nodes of an adult patient with poorly differentiated adenocarcinoma exhibiting focal signet-ring cell carcinoma features. The cell line was developed from tumor tissues acquired during surgical resection and has been successfully maintained both in vitro and as a transplantable tumor in nude mice. In vitro, NUGC-4 cells grow predominantly as spherical cells, with some free-floating populations, and exhibit epithelial characteristics confirmed via electron microscopy. These include well-developed endoplasmic reticulum, Golgi apparatus, cytoplasmic filaments, and desmosome-like junctions. Notably, cells contain intracytoplasmic microcysts, contributing to their unique morphology.
Chromosomal analysis reveals that NUGC-4 cells possess a near-triploid karyotype with a modal chromosome number ranging from 52 to 54 in vitro and approximately 53 in vivo. The cells display consistent trisomies across several chromosomal groups, though no specific marker chromosomes were identified. Doubling time for NUGC-4 is approximately 29.9 hours, indicating a moderately rapid proliferation rate under standard culture conditions. Among three related gastric cancer lines (NUGC-2, NUGC-3, and NUGC-4), NUGC-4 exhibited the highest in vitro sensitivity to anticancer agents such as mitomycin C and adriamycin, suggesting a heightened responsiveness to certain DNA-damaging chemotherapeutics.
Histologically, xenografts derived from NUGC-4 resemble the parent tumor, maintaining features of a scirrhous carcinoma pattern. The line has been used in drug response profiling and molecular characterization studies as part of large-scale cancer cell line projects. Its combination of clinical origin, histological fidelity, and drug sensitivity profile makes NUGC-4 a relevant model for studying aggressive and chemoresponsive gastric adenocarcinomas with diffuse-type characteristics.

Tissue	Metastatic
Disease	Gastric signet ring cell adenocarcinoma
Metastatic site	Paragastric lymph node

Synonyms

- NUGC4
- NU-GC-4
- Nagoya University-Gastric Cancer-4

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Doubling time	29.9 hours

IDENTIFIERS

Citation

NUGC-4 (Cytion catalog number 305645)

NCBI TaxID	9606

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Banking information
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Cellosaurus	CVCL_3082

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	Acccutase
Seeding density	1 to 4 x 10^4 cells/cm^2
Fluid renewal	2 to 3 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	35 years
Ethnicity	Japanese

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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