Novikoff Hepatoma

500373

GENERAL INFORMATION

Description

Novikoff-Hepatoma, also known as Novikoff Hepatoma or NK, is a rat hepatocellular carcinoma cell line derived from a male Sprague Dawley rat (Rattus norvegicus). The tumor originated as an experimentally induced hepatoma and has been widely used as a transplantable and in vitro model of rat liver cancer. It represents a poorly differentiated hepatocellular carcinoma and is characterized by rapid proliferation and high tumorigenic capacity in syngeneic hosts. The N1-S1 cell line originates from the same individual tumor, indicating a shared genetic background between these related derivatives.
Novikoff-Hepatoma cells exhibit morphological and biochemical features consistent with malignant hepatocytes, including altered metabolic activity, dysregulated cell cycle control, and enhanced nucleolar and ribosomal biogenesis typical of rapidly growing hepatic tumors.
Historically, this model has been extensively used in studies of liver carcinogenesis, tumor metabolism, RNA and protein synthesis, and chemotherapeutic response in rodent systems. Due to its robust growth characteristics and reproducibility, the line has served as a classical model in experimental oncology, particularly for investigating hepatocellular carcinoma biology in immunocompetent rat models.
As a Sprague Dawley - derived tumor line, Novikoff-Hepatoma is compatible with syngeneic transplantation studies in the corresponding rat strain, enabling investigation of tumor-host interactions, therapeutic interventions, and loco-regional treatment strategies such as intra-arterial drug delivery. Its well-documented experimental history and stable malignant phenotype make it a valuable preclinical model for mechanistic studies of hepatocellular carcinoma progression and treatment response in vivo and in vitro.

Tissue	Liver
Disease	Hepatocellular carcinoma

Applications

Induction of hepatoma

Synonyms

- Novikoff-Hepatoma
- NK

CLASSIFICATION

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

CHARACTERISTICS

Tumourigenic	Yes, in Sprague-Dawley Rat

IDENTIFIERS

Citation

Novikoff Hepatoma (Cytion catalog number 500373)

NCBI TaxID	10116
Cellosaurus	CVCL_1D01

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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	1 x 10^5 cells/ml
Post-thaw recovery	Good. Allow the cells to recover from the freezing process for at least 24 to 48 hours.

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

Breed / subspecies	Sprague-Dawley

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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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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