Nthy-ori 3-1

305606

GENERAL INFORMATION

Description

The Nthy-ori 3-1 cell line is a non-tumorigenic model established from normal human thyroid follicular epithelium. It was immortalized using the SV40 large T antigen (SV40T), which allows for extended culture periods without inducing transformation into a malignant phenotype. Nthy-ori 3-1 cells exhibit characteristics typical of thyroid epithelial cells, including expression of markers such as thyroglobulin and thyroid transcription factor-1 (TTF-1), which are essential for thyroid-specific functions. This cell line serves as a valuable tool for investigating normal thyroid biology, the effects of environmental toxins, and the early stages of thyroid carcinogenesis.
In research, Nthy-ori 3-1 has been used to explore the molecular mechanisms underlying thyroid disorders, including autoimmune thyroiditis and goiter. It provides a comparison to thyroid cancer cell lines, particularly in studies focused on the role of oxidative stress and DNA damage. For example, exposure of Nthy-ori 3-1 cells to genotoxic agents has been shown to induce DNA strand breaks and repair responses, which are critical for understanding mutagenesis and the development of thyroid malignancies.
Additionally, the cell line is utilized in toxicology to evaluate the impact of environmental and pharmaceutical compounds on thyroid health. Studies using Nthy-ori 3-1 cells have highlighted pathways involved in cellular response to thyrotoxic agents and endocrine disruptors. This makes Nthy-ori 3-1 a vital model for research on thyroid function regulation, disease modeling, and therapeutic screening.

Tissue	Thyroid gland

Synonyms

- Nthy ori 3.1
- Nthy-ori 3.1
- NTHY-ORI3.1
- HTori-3.1

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Cell type	Follicular cell

IDENTIFIERS

Citation

Nthy-ori 3-1 (Cytion catalog number 305606)

NCBI TaxID	9606
Cellosaurus	CVCL_2659

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Banking information
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EXPRESSION AND SUSCEPTIBILITY

Viruses

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
Seeding density	2-4x10^4 cells/cm2
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	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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