



# NuLi-1

CRL-4011™

## Description

NuLi-1 are hTERT-immortalized cells exhibiting epithelial morphology that were isolated from the normal lungs of a 36-year-old male. These cell lines may be useful models for studying ion physiology, therapeutic interventions for cystic fibrosis, and innate immunity.

**Organism:** *Homo sapiens*, human

**Cell Type:** epithelial cell

**Tissue:** Lung; Bronchus; Epithelium

**Age:** 36 years

**Gender:** Male

**Morphology:** Epithelial-like

**Growth properties:** Adherent

**Disease:** Normal

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## Storage Conditions

**Product format:** Frozen

**Storage conditions:** Vapor phase of liquid nitrogen

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## Intended Use

This product is intended for laboratory research use only. It is not intended for any animal or human therapeutic use, any human or animal consumption, or any diagnostic use.

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## BSL 2

ATCC determines the biosafety level of a material based on our risk assessment as

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guided by the current edition of *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, U.S. Department of Health and Human Services. It is your responsibility to understand the hazards associated with the material per your organization's policies and procedures as well as any other applicable regulations as enforced by your local or national agencies.

Cells contain Human papillomavirus (HPV) sequences

Cells contain SV40 sequences

ATCC highly recommends that appropriate personal protective equipment is always used when handling vials. For cultures that require storage in liquid nitrogen, it is important to note that some vials may leak when submersed in liquid nitrogen and will slowly fill with liquid nitrogen. Upon thawing, the conversion of the liquid nitrogen back to its gas phase may result in the vial exploding or blowing off its cap with dangerous force creating flying debris. Unless necessary, ATCC recommends that these cultures be stored in the vapor phase of liquid nitrogen rather than submersed in liquid nitrogen.

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### Certificate of Analysis

For batch-specific test results, refer to the applicable certificate of analysis that can be found at [www.atcc.org](http://www.atcc.org).

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### Growth Conditions

**Temperature:** 37°C

**Atmosphere:** 95% Air, 5% CO<sub>2</sub>

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## Handling Procedures

### Unpacking and storage instructions:

1. Check all containers for leakage or breakage.
2. Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below  $-130^{\circ}\text{C}$ , preferably in liquid nitrogen vapor, until ready for use.

**Complete medium:** These cells are grown in a serum-free medium: Airway Epithelial Cell Basal Medium (ATCC PCS-300-030) and Bronchial Epithelial Cell Growth Kit (ATCC PCS-300-040) additives.

Atmosphere: air, 95%;  $\text{CO}_2$ , 5%

**Handling Procedure:** To ensure the highest level of viability, thaw the vial and initiate the culture as soon as possible upon receipt. If storage of the frozen culture is necessary upon arrival, store the vial in liquid nitrogen vapor phase and NOT at  $-70^{\circ}\text{C}$ . Storage at  $-70^{\circ}\text{C}$  will result in loss of viability.

1. Prepare a 25  $\text{cm}^2$  or a 75  $\text{cm}^2$  culture flask containing the recommended complete culture medium. Prior to the addition of the vial contents, the vessel containing the growth medium should be placed in the incubator for at least 15 minutes to allow the medium to reach its normal pH (7.0 to 7.6) and to avoid excessive alkalinity of the medium during recovery of the cells.
2. Thaw the vial by gentle agitation in a  $37^{\circ}\text{C}$  water bath. To reduce the possibility of contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 minutes).
3. Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All operations from this point on should be carried out under strict aseptic conditions.
4. Transfer the vial contents to a centrifuge tube containing 9.0 mL of complete culture medium and centrifuge the cell suspension at approximately  $125 \times g$  for 5 to 7 minutes.
5. Discard the supernatant and resuspend the cells in fresh growth medium (see the batch-specific information for the recommended dilution ratio). Add this suspension to the prepared culture vessel.
6. Incubate the culture at  $37^{\circ}\text{C}$  in a suitable incubator.
7. A 5%  $\text{CO}_2$ /95% air atmosphere is recommended if using the medium described on this product sheet.

### Subculturing procedure:

**Note:** The culture flasks should be pre-coated with 60  $\mu\text{g}/\text{mL}$  solution of Human Placental Collagen Type IV. (Sigma Cat. No. C-7521 or equivalent) at least 18 hours in

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advance then air-dried and rinsed 2-3 times with Dulbecco's Phosphate Buffered Saline. Volumes are given for a 75 cm<sup>2</sup> flask; proportionally reduce or increase amount of dissociation medium for culture vessels of other sizes.

1. Subculture when the culture is about 90% confluence. Expected cell yield is between  $4 \times 10^4$  and  $5 \times 10^4$  viable cells/cm<sup>2</sup>.
2. Remove and discard culture medium.
3. Add 2.0 to 3.0 mL of 0.25% (w/v) trypsin-0.53 mM EDTA solution to the flask and observe cells under an inverted microscope until the cell layer is dispersed (usually within 5 to 10 minutes). **Note:** To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Place at 37°C to facilitate dispersal.
4. To stop trypsinization, add 2.0 to 3.0 mL of 1% FBS in Dulbecco's Phosphate Buffered Saline and aspirate cells by gently pipetting.
5. Transfer cell suspension to a 15 mL centrifuge tube and spin at approximately 125 x g for 5 to 10 minutes.
6. Discard supernatant and resuspend cells in fresh growth medium. Add appropriate aliquots of the cell suspension to new culture vessels. An inoculum of  $1.5$  to  $2.0 \times 10^4$  viable cells/cm<sup>2</sup> is recommended.
7. Incubate cultures at 37°C.

**Subcultivation Ratio:** 1:3

**Medium Renewal:** Every 2-3 days (**DO NOT EXCEED 3 DAYS**)

**Note:** For more information on enzymatic dissociation and subculturing of cell lines consult Chapter 13 in *Culture Of Animal Cells: A Manual of Basic Techniques* by R. Ian Freshney, 5th edition, published by Wiley-Liss, N.Y., 2005.

**Reagents for cryopreservation:** Complete culture medium + 30% FBS + 10% DMSO. Store in liquid nitrogen vapor. Avoid immersing vials into liquid nitrogen.

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## Material Citation

If use of this material results in a scientific publication, please cite the material in the following manner: NuLi-1 (ATCC CRL-4011)

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## References

References and other information relating to this material are available at

[www.atcc.org](http://www.atcc.org).

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### Contact Information

ATCC

10801 University Boulevard

Manassas, VA 20110-2209

USA

US telephone: 800-638-6597

## NuLi-1

CRL-4011

Worldwide telephone: +1-703-365-2700

Email: [tech@atcc.org](mailto:tech@atcc.org) or contact your local distributor

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