**Cell Characteristics**

**Tissue:** respiratory tract

**Morphology:** Spindle-shaped; cells are bipolar and refractile.

**Growth Properties:** adherent

---

**Batch-Specific Information**

Refer to the Certificate of Analysis for batch-specific test results.

---

**SAFETY PRECAUTION**

ATCC highly recommends that protective gloves and clothing always be used and a full face mask always be worn when handling frozen vials. It is important to note that some vials 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 vessel exploding or blowing off its cap with dangerous force creating flying debris.

---

**Unpacking & 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°C, preferably in liquid nitrogen vapor, until ready for use.

---

**Preparation of Complete Growth Medium**

1. Obtain one vial of Primary Lung fibroblast cells; Normal, Human (ATCC PCS-201-013) from the liquid nitrogen tank; make sure that the caps of all components are tight.
2. Thaw the components of Fibroblast Growth Kit-Low serum ATCC® PCS-201-041™ just prior to adding them to the Fibroblast Basal Medium ATCC® PCS-201-030™.
3. Obtain one bottle of Fibroblast Basal Medium ATCC® PCS-201-030™ from cold storage.
4. Decontaminate the external surfaces of all growth kit component vials and the basal medium bottle by spraying them with 70% ethanol.
5. Using aseptic technique and working in a laminar flow hood or biosafety cabinet, transfer the indicated volume of each growth kit component, as indicated in Table 1, into the bottle of basal medium using a separate sterile pipette for each transfer.

**Handling Procedure for Frozen Cells and Initiation of Culture**

Refer to the batch specific information for the total number of viable cells recovered from this lot of cells.

1. Using the total number of viable cells, determine how much surface area can be inoculated to achieve an initial seeding density of between 2,500 and 5,000 cells per cm².
2. Prepare the desired combination of flasks. Add 5 mL of complete growth media per 25 cm² of surface area. Place the flasks in a 37°C, 5% CO₂, humidified incubator and allow the media to pre-equilibrate to
**Primary Lung Fibroblast; Fibrosis (ATCC® PCS-201-020™)**

Please read this FIRST

**Storage Temp.**

- Liquid nitrogen vapor phase

**Biosafety Level**

- 1

---

**Intended Use**

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

---

**Citation of Strain**

If use of this culture results in a scientific publication, it should be cited in that manuscript in the following manner: Primary Lung Fibroblast; Fibrosis (ATCC® PCS-201-020™).

---

**Maintenance**

1. Pre-warm complete growth media in a 37°C water bath. This will take between 10 to 30 minutes, depending on the volume. If using a small volume of medium (50 mL or less), warm only the volume needed in a sterile conical tube. Avoid warming complete growth media multiple times.

2. 24 to 36 hours after seeding, remove the cells from the incubator and view each flask under the microscope to determine percent cellular confluence.

3. Carefully remove the spent media without disturbing the monolayer.

4. Add 5 mL of fresh, pre-warmed complete growth media per 25 cm² of surface area and return the flask to the incubator.

5. After 24 to 48 hours, view each flask under the microscope to determine percent cellular confluence.

6. If not ready to passage, repeat steps 3 and 4 as described above. When cultures have reached 80% to 90% confluence, and are actively proliferating (many mitotic figures are visible), it is time to subculture. Fibroblasts are not a contact inhibited cell type.

---

**Subculturing**

1. Passage normal lung fibroblast cells when culture has reached approximately 80% to 90% confluence, and are actively proliferating.

2. Warm both the Trypsin-EDTA for Primary Cells (ATCC PCS-999-003) and the Trypsin Neutralizing Solution (ATCC PCS-999-004) to room temperature prior to dissociation. Warm complete growth medium to 37°C prior to use with the cells.

3. For each flask, carefully aspirate the spent media without disturbing the monolayer.

4. Briefly rinse the cell layer with 3 to 5 mL DPBS (ATCC 30-2200) to remove residual traces of serum and then aspirate and discard the DPBS.

5. Add pre-warmed trypsin-EDTA solution (2 to 3 mL for every 25 cm²) to each flask.

6. Gently rock each flask to ensure complete coverage of the trypsin-EDTA solution over the cells.

7. Observe the cells under the microscope. When the cells pull away from each other and round up (typically within 3 to 5 minutes), remove the flask from the microscope and gently tap it from several sides to promote detachment of the cells from the flask surface.

8. When the majority of cells are detached, quickly add an equal volume of Trypsin Neutralizing Solution (ATCC PCS-999-004) to each flask. Gently pipette or swirl the culture to ensure all of the trypsin-EDTA solution has been neutralized.

9. Transfer the dissociated cells to a sterile centrifuge tube and set aside while processing any remaining cells in the flask.

10. Add 3 to 5 mL Trypsin Neutralizing Solution (ATCC PCS-999-004) to the flask to collect any remaining dissociated cells. Transfer remaining cells into the centrifuge tube.

11. Repeat steps 10 as needed until all cells have been collected from the flask.

12. Centrifuge the cells at 150 x g for 3 to 5 minutes.

13. Carefully aspirate the neutralized dissociation solution from the cell pellet and re-suspend the cells in 5 to 8 mL fresh, pre-warmed, complete growth medium.

14. Count the cells and seed new flasks at a density of 2,500 to 5,000 cells per cm².

15. Place freshly seeded flasks in a 37°C, 5% CO₂ incubator for at least 24 to 48 hours before processing the cells further. Refer to Maintenance for guidelines on feeding.

**Viability:** Refer to Certificate of Analysis for lot specific data

---

**Quality Control Specifications**

**Sterility Testing**

- Bacteria and Yeast: Negative
Mycoplasma: Negative

Viral Testing
Hepatitis B: Negative
Hepatitis C: Negative
HIV: Negative

Specific Staining
TE-7 (+), Pan-Cytokeratin (-)

Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the current publication of the Biosafety in Microbiological and Biomedical Laboratories from the U.S. Department of Health and Human Services Centers for Disease Control and Prevention and National Institutes for Health.

Human Material Precaution

All tissues used for isolation are obtained under informed consent and conform to HIPAA standards to protect the privacy of the donor’s personal health information. It is best to use caution when handling any human cells. We recommend that all human cells be accorded the same level of biosafety consideration as cells known to carry HIV. With infectious virus assays or viral antigen assays, even a negative test result may leave open the possible existence of a latent viral genome.

ATCC Warranty

The viability of ATCC® products is warranted for 30 days from the date of shipment, and is valid only if the product is stored and cultured according to the information included on this product information sheet. ATCC lists the media formulation that has been found to be effective for this strain. While other, unspecified media may also produce satisfactory results, a change in media or the absence of an additive from the ATCC recommended media may affect recovery, growth and/or function of this strain. If an alternative medium formulation is used, the ATCC warranty for viability is no longer valid.

Disclaimers

This product is intended for laboratory research purposes only. It is not intended for use in humans.

While ATCC uses reasonable efforts to include accurate and up-to-date information on this product sheet, ATCC makes no warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. ATCC does not warrant that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, and use. ATCC is not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of strains on deposit, ATCC is not liable for damages arising from the misidentification or misrepresentation of cultures.

Please see the enclosed Material Transfer Agreement (MTA) for further details regarding the use of this product. The MTA is also available on our Web site at www.atcc.org.

Additional information on this culture is available on the ATCC web site at www.atcc.org.

© ATCC 2019. All rights reserved. ATCC is a registered trademark of the American Type Culture Collection. [12/19]