Primary Bladder Smooth Muscle Cells; Normal, Human (HBdSMC) (ATCC® PCS-420-012™)

**Please read this FIRST**

**Storage Temp.**

-130°C or below

**Biosafety Level**

1

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**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 Bladder Smooth Muscle Cells; Normal, Human (HBdSMC) (ATCC® PCS-420-012™)

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**Description**

**Cell Characteristics**

**Tissue:** Bladder

**Morphology:** spindle-shaped; elongated (non-differentiated)

**Growth Properties:** Adherent

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

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**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 submerged 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.

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**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.

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**Preparation of Complete Growth Medium**

1. Obtain one vial of Primary Bladder Smooth Muscle Cells (ATCC PCS-420-012) from the freezer; make sure that the caps of all components are tight.
2. Thaw the components of the growth kit (ATCC PCS-100-042) just prior to adding them to the basal medium (ATCC PCS-100-030).
3. Obtain one bottle of Vascular Cell Basal Medium (485 mL; PCS-100-030) 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.

**Table 1.** If using the Vascular Smooth Muscle Cell Growth Kit, add the indicated volume for each of the following components

<table>
<thead>
<tr>
<th>Component</th>
<th>Volume</th>
<th>Final Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>rh FGF basic</td>
<td>0.5 mL</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>L-glutamine</td>
<td>25.0 mL</td>
<td>10 mM</td>
</tr>
<tr>
<td>Ascorbic acid</td>
<td>0.5 mL</td>
<td>50 µg/mL</td>
</tr>
<tr>
<td>rh Insulin</td>
<td>0.5 mL</td>
<td>5 µg/mL</td>
</tr>
<tr>
<td>rh EGF</td>
<td>0.5 mL</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Fetal Bovine</td>
<td>25.0 mL</td>
<td>5%</td>
</tr>
<tr>
<td>Serum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Antimicrobials and phenol red are not required for proliferation but may be added if desired. The recommended volume of either of the optional components (GA solution or PSA solution) to be added to the complete growth media is summarized in Table 2.

**Table 2.** Addition of Antimicrobials/Antimycotics and Phenol Red (Optional)

<table>
<thead>
<tr>
<th>Component</th>
<th>Volume</th>
<th>Final Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gentamicin-Amphotericin B Solution</td>
<td>0.5 mL</td>
<td>Gentamicin: 10 µg/mL Amphotericin B: 0.25 µg/mL</td>
</tr>
<tr>
<td>Penicillin-Streptomycin</td>
<td>0.5 mL</td>
<td>Penicillin: 10 Units/mL Streptomycin: 10 µg/mL</td>
</tr>
</tbody>
</table>

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American Type Culture Collection
PO Box 1549
Manassas, VA 20108 USA
www.atcc.org
800.638.6597 or 703.365.2700
Fax: 703.365.2750
Email: Tech@atcc.org
Or contact your local distributor
Primary Bladder Smooth Muscle Cells; Normal, Human (HBdSMC) (ATCC® PCS-420-012™)

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Biosafety Level 1

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<table>
<thead>
<tr>
<th>Amphotericin B Solution</th>
<th>Amphotericin B: 25 ng/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol Red</td>
<td>0.5 mL</td>
</tr>
<tr>
<td></td>
<td>33 µM</td>
</tr>
</tbody>
</table>

6. Tightly cap the bottle of complete growth medium and swirl the contents gently to assure a homogeneous solution. Do not shake forcefully to avoid foaming. Label and date the bottle.
7. Complete growth media should be stored in the dark at 2°C to 8°C (do not freeze). When stored under these conditions, complete growth media is stable for 30 days.

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 ATCC® PCS-420-012.
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 temperature and pH for 30 minutes prior to adding cells.
3. While the culture flasks equilibrate, remove one vial of ATCC® PCS-420-012 from storage and thaw the cells by gentle agitation in a 37°C water bath. To reduce the possibility of contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 1 to 2 minutes).
4. 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 onward should be carried out under strict aseptic conditions.
5. Add the appropriate volume of complete growth media [volume = (1 mL x number of flasks to be seeded) – 1 mL] into a sterile conical tube. Using a sterile pipette, transfer the cells from the cryovial to the conical tube. Gently pipette the cells to homogenize the suspension. Do not centrifuge.
6. Transfer 1.0 mL of the cell suspension to each of the pre-equilibrated culture flasks prepared in steps 1 to 3 of Handling Procedure for Frozen Cells and Initiation of Culture. Pipette several times, then cap and gently rock each flask to evenly distribute the cells.
7. Place the seeded culture flasks in the incubator at 37°C with a 5% CO₂ atmosphere. Incubate for at least 24 hours before processing the cells further.

Maintenance

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 flasks to the incubator.
5. After 24 to 48 hours, view each flask under the microscope to determine percent cellular confluence. If not ready to passage or subculture, repeat steps 3 and 4 as described above. When cultures have reached approximately 75% to 80% confluence, and are actively proliferating, it is time to subculture. Human bladder smooth muscle cells may be contact inhibited, therefore ATCC recommends that cells be passaged before reaching confluence as post-confluent cells may not proliferate well after passaging.
Note: Cells are typically ready to passage after 4 to 6 days in culture when inoculated with 2,500 cells/cm².

Subculturing

1. Passage normal bladder fibroblast cells when culture has reached approximately 80% confluence.
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. Rinse the cell layer two times with 3 to 5 mL DPBS (ATCC® 30-2200) to remove residual traces of serum.
5. Add pre-warmed trypsin-EDTA solution (1 to 2 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, and then aspirate the excess fluid off of the monolayer.
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
8. When the majority of cells are detached, quickly add an equal volume of Trypsin Neutralizing Solution 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 DPBS to the flask to collect any additional cells that might have been left behind.
11. Transfer the cell/DPBS suspension to the centrifuge tube containing the trypsin-EDTA dissociated cells.
12. Repeat steps 10 and 11 as needed until all cells have been collected from the flask.
13. Centrifuge the cells at 150 x g for 3 to 5 minutes.
14. Aspirate the neutralized dissociation solution from the cell pellet and re-suspend the cells in 2 to 8 mL fresh, pre-warmed, complete growth medium.
15. Count the cells and seed new flasks at a density of 2,500 to 5,000 cells per cm². 
16. Place newly 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.

**Quality Control Specifications**

**Sterility Testing**

- **Bacteria and Yeast**: Negative
- **Mycoplasma**: Negative

**Viral Testing**

- **Hepatitis B**: Negative
- **Hepatitis C**: Negative
- **HIV**: Negative

**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.

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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

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