ATCC® HUMAN PRIMARY CELLS

From in situ

To serve as ideal controls to in vitro models

To capture the in vivo situation

COMPLETE PRIMARY CELL SOLUTIONS FOR ROBUST CELL GROWTH

ATCC offers:
- Primary cell media
- Cell-specific growth kits
- Dissociation reagents
- Cryopreservation media
- Optimized growth protocols
- Primary Cell Culture Guide

WHAT ARE HUMAN PRIMARY CELLS?
- Untransformed
- May display similar gene expression as cells in situ
- Many similar physiologic functions as in vivo
- Indispensable for a wide range of experiments
- Ideal to examine physiology or disease pathology
- Can reduce animal usage in preclinical experiments

3-D CULTURE MODELS CAPTURE THE IN VIVO SITUATION:
- Form functional airway epithelium
- Mucus secretion
- Cilia formation
- Form functional epidermis
- Stratified morphology
- Barrier function
- Form vascular tubules
- Von Willebrand factor & CD31 expression
- AcLDL uptake
- Form Organoids
- Microtissue structure
- Genotypically/phenotypically stable

Use the new Human Primary Cell selection guide at www.atcc.org/primarycellselection
hTERT-IMMORTALIZED PRIMARY CELLS combine the best of both worlds:

ATCC human telomerase reverse transcriptase (hTERT)-immortalized primary cells combine the in vivo nature of primary cells with the growth potential of a continuous cell line.

Pros and cons of different cell models for tissue-relevant functional studies

<table>
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<th>Primary cells</th>
<th>hTERT-immortalized</th>
<th>Cancer cell lines</th>
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<tr>
<td>Mimic in vivo Tissue Phenotype</td>
<td>![Bar chart]</td>
<td>![Bar chart]</td>
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<td>Genotypic Stability</td>
<td>Diploid</td>
<td>Diploid/ Near diploid</td>
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<td>Proliferative Capacity</td>
<td>Limited</td>
<td>Extended</td>
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<td>Inter-experimental Consistency</td>
<td>Varies by donor</td>
<td>Good</td>
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<td>Serum requirement for media</td>
<td>Serum-free or low serum</td>
<td>Serum-free in some lines</td>
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hTERT-IMMORTALIZATION

- Primary cells are restricted to a finite number of cell divisions.
- Telomers are repeat sequences that cap chromosome ends.
- This limit is due to the loss of telomeres during cell division.
- Transfect target cells with the catalytic subunit of telomerase enzyme (hTERT).
- hTERT catalyzes the replacement of telomere subunits.
- The hTERT-expressing cell escapes senescence.

Bypassing replicative senescence: Overexpression of telomerase and supportive oncoproteins in primary cells.

- 5-fold increase in lifespan.
- Retention of physiological characteristics.

hTERT-immortalized and normal Primary Cell Culture Guides

Learn all about:
- Growth media formulations
- Culturing conditions
- Seeding densities
- Cell counting
- Confluence
- Cryopreservation
- Subculturing protocols
- Download the guides at www.atcc.org/guides

Browse ATCC’s wide variety of hTERT-immortalized primary cells at www.atcc.org/hTERT