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cell based solutions

IMMORTALIZED CELL LINES

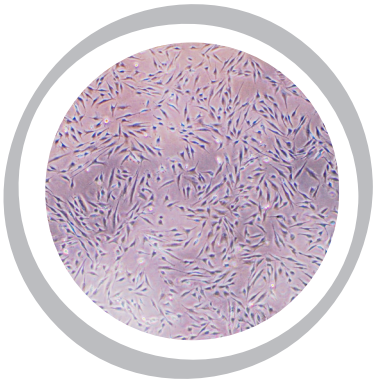
IMMORTALIZED HUMAN
HAIR DERMAL PAPILLA CELLS

Product Type: Immortalized Human Hair Dermal Papilla Cells
Source: Human Hair Follicles
Catalog Number: P10881-IM
Immortalization: SV40 Large T Antigen. G418 resistant.
Number of cells: >1x10^6 cells (cryopreserved vials)
Storage: Liquid Nitrogen
Recommended Medium: Mesenchymal Stem Cell Medium (Ref: P60115)
Product Characterization: Immunofluorescence for CD105 and Vimentin.

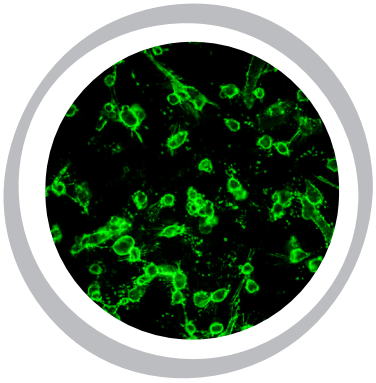
P10881-IM

The dermal papilla (DP) is a specialized mesenchymal structure located at the base of the hair follicle, playing a pivotal role in hair growth and follicular regeneration. Comprised of a dense aggregation of fibroblasts, the DP interacts closely with epithelial cells to regulate hair follicle cycling, stem cell activation, and extracellular matrix remodeling.

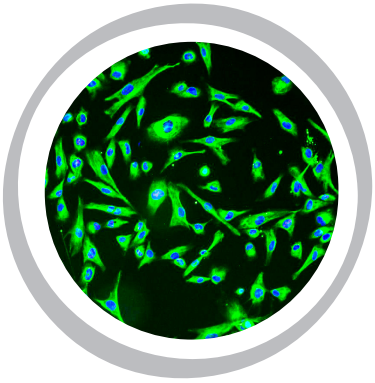
Immortalized human hair dermal papilla cells provide a stable and renewable model for studying hair follicle biology, skin regeneration, and tissue engineering. These cells retain key phenotypic and functional properties of primary DP cells, including the ability to induce hair follicle formation in co-culture systems. Furthermore, they establish intercellular communication networks through gap junctions and paracrine signaling, which contribute to their role in dermal-epithelial interactions. Their capacity for prolonged proliferation in vitro makes them a valuable tool for investigating hair growth mechanisms, screening potential therapeutic compounds, and developing regenerative medicine applications.



Phase-contrast



CD105



Vimentin

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About Immortalized Human Hair Dermal Papilla Cells

The immortalized human hair dermal papilla cell line has been developed through genetic modification of primary culture of human hair dermal papilla cells, employing the SV40LT protein as the immortalization method. The SV40LT protein, derived from the Simian Virus 40 Large T-antigen, has been introduced to confer immortality to the cells, allowing for an extended lifespan compared to primary cells that typically undergo senescence after a limited number of passages. The use of SV40LT for immortalization is a common technique in cell biology and allows for the establishment of cell lines with a more stable and prolonged growth capacity. This modification enables researchers to conduct long-term experiments and studies that require consistent cellular behavior over an extended period. Primary cells exhibit senescence following the 5th passage, whereas the SV40LT-transduced cells demonstrate a prolonged viability, extending beyond 20 passages.

Culturing conditions

1 IMMEDIATELY UPON DELIVERY

1.1 Remove the vial from the shipping container to check for freezing.

1.2 Transfer the frozen vial to liquid nitrogen until ready to thaw.

2 THAWING CELLS:

2.1 Prepare "Thawing medium" by combining 500 ml of basal medium, 25 ml of fetal bovine serum, 5 ml of Growth supplement and 5 ml of penicillin/streptomycin solution.

2.2 Thaw cells rapidly in a 37ºC water bath; avoid allowing the sample to warm to 37ºC. Cryovials should be cool to the touch when removed.

2.3 Remove the vial, wipe it dry, and transfer it to a sterile field.

2.4 Rinse the vial with 70% ethanol, then wipe to remove excess. Open the vial and resuspend its contents using a 1 ml Eppendorf pipette.

2.5 Dispense the contents into a 25 cm^2 culture flask with warm complete media (FBS percentage can be increased up to 10% for better culture establishment).

2.6 Place the flask in the incubator.

2.7 For optimal results, avoid disturbing the culture for 16 hours after initiation. Change the growth medium the next day to remove unattached cells, then every other day thereafter.

3 MAINTENANCE OF THE CULTURE:

3.1 Change medium 48 hours after establishing a subculture.

3.2 Subculture when cells are over 90% confluent.

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Culturing conditions

4 SUBCULTURING:

Remove medium, rinse with 0.05% trypsin-EDTA solution. Add 1 to 2 mL of trypsin-EDTA solution and allow the flask to sit until cells detach. Add fresh culture medium, aspirate, and dispense into new culture flasks.

Recommended subcultivation ratio of 1:2 to 1:6.

Medium Renewal: 2 to 3 times per week.

Reagents for cryopreservation: Cryostor S10.

Quality Control / Biosafety

The cells test negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast and fungi.

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