Product sheet

Human Dermal Fibroblast - Adult (HDF-Ad) | 300606

General information

Description	Human Dermal Fibroblasts, Adult (HDF-Ad), are primary cells isolated from the dermis layer of adult human skin. These cells play a crucial role in skin physiology, being responsible for the production of extracellular matrix components, including collagen and elastin, which are essential for maintaining skin structure and function. HDF-Ad cells are frequently utilized in research related to wound healing, aging, and tissue engineering, given their significant role in skin repair and regeneration processes. Additionally, they serve as an important model for studying fibroblast behavior in various dermatological conditions and diseases. HDF-Ad cells are highly responsive to external stimuli, making them a valuable tool for investigating the cellular responses to different environmental factors such as UV radiation, oxidative stress, and various pharmaceutical compounds. Their ability to proliferate and produce essential proteins under controlled conditions also makes them suitable for studies in drug development, particularly in the context of dermal toxicity and efficacy testing. These cells retain many of the physiological characteristics of their tissue of origin, providing a relevant model for in vitro studies aimed at understanding skin biology at the molecular and cellular levels.
Organism	Human
Tissue	Dermis

Characteristics

Ethnicity	Caucasian
Growth properties	Adherent

Regulatory Data

Citation	Human Dermal Fibroblast, Adult (HDF-Ad) (Cytion catalog number 300606)
Biosafety level	1
NCBI_TaxID	9606

Biomolecular Data

Protein expression	Positive: CD73/CD90/CD105 Negative: CD14/CD34/CD45/HLA-DR
Tumorigenic	No

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Viruses	Negative for: HIV-1/2, HBV, HCV, HSV1/2, CMV, EBV, HHV6, Treponema pallidum, Toxoplasma gondii, Chlamydia trachomatis, Ureaplasma urealyticum, Ureoplasma parvum

Handling

Culture Medium	MEM, w/o ribonucleosides, w/o deoxyribonucleosides (We do not supply this product; please consider other suppliers. Please let us know if you need further assistance)
Supplements	Supplement the medium with 10% FBS, 2 ng/mL hr-bFGF, 2 mM stable L-glutamine
Dissociation Reagent	Trypsin-EDTA
Subculturing	For routine adherent cell culture: Aspirate the old culture medium from the adherent cells, and wash them with PBS to remove any remaining medium. After aspirating the PBS, add the appropriate volume of Trypsin/EDTA solution based on the culture vessel size (e.g., 1 ml for a T25 flask, 3 ml for a T75 flask) and incubate at room temperature or 37°C until the cells detach (5-10 minutes). Monitor detachment under a microscope, and gently tap the vessel if necessary to release the cells. Once detached, add complete medium to inactivate the Trypsin/EDTA, gently resuspend the cells, and transfer an aliquot of the cell suspension into a new culture vessel containing fresh medium. Place the vessel in an incubator set to 37°C with 5% CO_2, and change the medium every 2-3 days.
Seeding density	1 to $3*10^3$ cells/cm²
Fluid renewal	2 to 3 times per week
Freeze medium	As a cryopreservation medium, we use 90% FBS + 10% DMSO to maintain viability, or CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.

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Thawing and Culturing Cells

1. Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
2. Upon receipt, either store the cryovial immediately at temperatures below -150°C to ensure the preservation of cellular integrity, or proceed to step 3 if immediate culturing is required.
3. For immediate culturing, swiftly thaw the vial by immersing it in a 37°C water bath with clean water and an antimicrobial agent, agitating gently for 40-60 seconds until a small ice clump remains.
4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
5. Carefully open the disinfected vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of room-temperature culture medium, mixing gently.
6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
7. Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth.
8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

Incubation Atmosphere

37°C, 5% CO_2, humidified atmosphere.

Shipping Conditions

Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately −78 °C throughout transit. On receipt, inspect the container immediately and transfer vials without delay to appropriate storage.

Storage Conditions

For long-term preservation, place vials in vapor-phase liquid nitrogen at about −150 to −196 °C. Storage at −80 °C is acceptable only as a short interim step before transfer to liquid nitrogen.

Quality Control & Molecular Analysis

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Sterility	Mycoplasma contamination is excluded using both PCR-based assays and luminescence-based mycoplasma detection methods. To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.