Product sheet

Human Gingival Fibroblasts (hGF) | 300703

General information

Description	Human Gingival Fibroblasts (hGF) are primary cells derived from the connective tissue of the gingiva, or gum tissue, in the oral cavity. These fibroblasts play a critical role in maintaining the structural integrity of the gingival tissue by producing extracellular matrix components, including collagen, elastin, and glycosaminoglycans. Their ability to proliferate and migrate is essential for wound healing, tissue repair, and the response to periodontal disease. In addition to their structural roles, hGF are involved in inflammatory responses within the gingiva, interacting with various immune cells and mediating the release of cytokines and growth factors. This makes them a key cellular model for studying oral health, periodontal disease, and tissue regeneration. hGF cells are widely used in research focused on oral biology, particularly in understanding the pathophysiology of periodontal diseases, where the interaction between fibroblasts and pathogenic bacteria like *Porphyromonas gingivalis* is of significant interest. These cells are also utilized in tissue engineering and regenerative medicine, especially in developing therapies for gingival and periodontal defects. Their response to different biomaterials, growth factors, and extracellular matrix components is frequently studied to optimize conditions for tissue repair and regeneration in oral surgery and dental implants.
Organism	Human
Tissue	Gingiva
Applications	Tissue regeneration, Wound healing studies

Characteristics

Cell type	Fibroblast
Growth properties	Adherent

Regulatory Data

Citation	Human Gingival Fibroblasts (hGF) (Cytion catalog number 300703)
NCBI_TaxID	9606

Biomolecular Data

Handling

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Culture Medium	DMEM:Ham's F12 (1:1), w: 3.1 g/L Glucose, w: 2.5 mM L-Glutamine, w: 15 mM HEPES, w: 0.5 mM Sodium pyruvate, w: 1.2 g/L NaHCO3 (Cytion article number 820400a)
Supplements	Supplement the medium with 10% FBS, 10 ng/mL bFGF, 10 microgram/L Insulin
Dissociation Reagent	Accutase
Subculturing	Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium.
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.