

Human Fibroblast-Like Synoviocytes- Osteoarthritis (HFLS-OA)

SKU: 10HU-256

Product Description

Synovial joints are unique functional elements of the body and provide the ability for locomotion and for physical interaction with the environment^[1,2]. The inner lining of the joint consists of the synovium, also called the synovial membrane, a thin layer located between the joint capsule and the joint cavity. Fibroblast-like synoviocytes (FLS) are mesenchymal origin cells located inside the synovial membrane. FLS display many characteristics common with fibroblasts, such as expression of several types of collagens and protein vimentin, a part of cytoskeletal filament. Once activated, FLS are suggested to acquire a myofibroblast-like phenotype that drives fibrogenesis through excessive extracellular matrix component deposition and an enhanced contractile function. These cells play a crucial role in the pathogenesis of chronic inflammatory diseases, such as rheumatoid arthritis. Therefore, Human FLS are an important model to understand articular function in degenerative and inflammatory joint diseases^[1-3].

Product Details

Catalog Number: 10HU-256

Organism: *Homo Sapiens*, Human

Cell Type: Mesenchymal cells

Tissue: Human synovial membrane

Disease: Osteoarthritis (OA)

Package Size: 0.5 x 10⁶ cells/vial

Passage Number: P2

Growth Properties: Adherent

Storage Conditions & Shipment

Product Format/Shipped: Cryopreserved

Storage: Liquid Nitrogen

PRODUCT SHEET

For Research Use Only

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Overview of Human Fibroblast-Like Synoviocytes-Osteoarthritis (HFLS-OA)

iXCells Biotechnologies provides high quality Human Fibroblast-Like Synoviocytes- Osteoarthritis (HFLS-OA), which are isolated from osteoarthritic human synovial membrane and cryopreserved at P2, with ≥ 0.5 million cells in each vial. HFLS-OA express fibronectin and vimentin and are characterized by their spindle-shaped morphology. They are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi and can be further expanded for no more than 3 passages in Synoviocyte Growth Medium (Cat# MD-0056) under the conditions suggested by iXCells Biotechnologies.

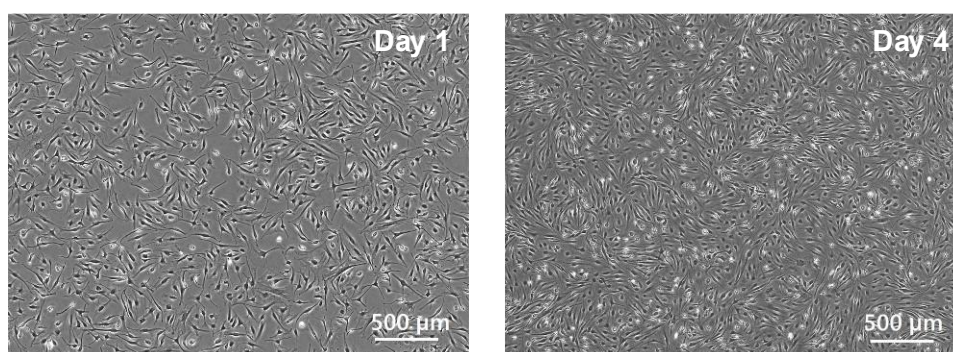


Figure 1. Human Fibroblast-Like Synoviocytes-Osteoarthritis (HFLS-OA). The cells were recovered, and seeded at 10,000 cells/cm² following iXCells' protocol. Phase contrast images were taken at the indicated time post recovery.

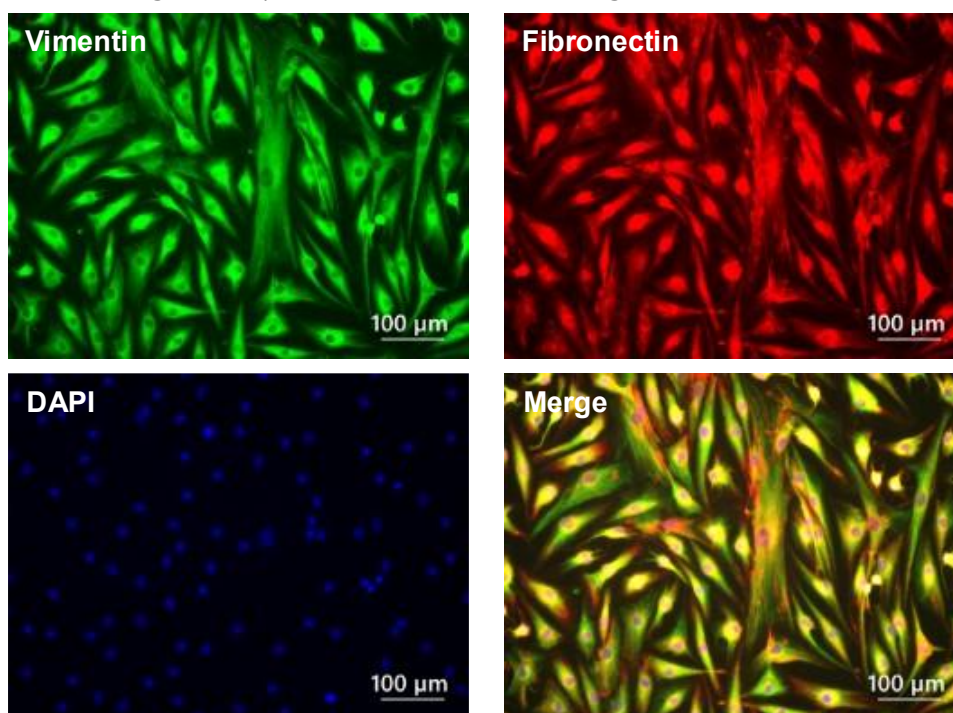


Figure 2. Immunofluorescence staining with antibodies against Vimentin (green) and Fibronectin (red) of Human Fibroblast-Like Synoviocytes--Osteoarthritis (HFLS-OA).

QuickStart Guide – Protocols

NOTE: IXCELLS CELLS ARE CULTURED IN 37°C, 5% CO₂ INCUBATOR. CELLS ARE ONLY WARRANTED IF IXCELLS RECOMMENDED MEDIA AND REAGENTS ARE USED AND IF THE PROVIDED PROTOCOLS ARE FOLLOWED.

Cell Culture Reagents

1. Complete culture medium: Synoviocyte Growth Medium (Cat# MD-0056), iXCells.
2. Trypsin: 0.05% Trypsin, Cytiva, Cat# SH30236.02.
3. DPBS: DPBS without Calcium, Magnesium, Cytiva, Cat# SH30028.02.

Cell Thawing – Frozen Cells

1. Upon receipt of the frozen cells, it is recommended to thaw the cells and initiate the culture immediately in order to retain the highest cell viability.
2. To thaw the cells, put the vial in 37°C water bath with gentle agitation for 1-2 minutes. Keep the cap out of water to minimize the risk of contamination.
3. Pipette the cells into a 15 mL conical tube with 5 mL fresh Complete Culture Medium.
4. Centrifuge at 1,000 rpm (~220 g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh complete culture medium.
6. Seed the cells in desired culture vessel at 5,000-10,000 cells/cm². Change the medium every other day until cells reach 80-90% confluence.

Safety Precaution: It is highly recommended that protective gloves and clothing should be used when handling frozen vials.

Subculture Procedure

1. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile DPBS (e.g. 5 mL for one T75 flask).
2. Add 3 mL of 0.05% Trypsin-EDTA to the flask and incubate for 5 minutes at 37°C. Neutralize the enzyme by adding 2-3 volumes of cell culture medium.
3. Centrifuge 1,000 rpm (~220 g) for 5 minutes and resuspend the cells in desired volume of medium.
4. Seed the cells in the new culture vessels at 5,000-10,000 cells/cm². Change the medium every other day until cells reach 80-90% confluence.

Note: Penicillin-Streptomycin, Antibiotics and antimycotics, or other antibiotics are optional in the culture media. iXCells in house tests were performed under antibiotics-free condition for ≥ 3 days by following the recommended protocol, and no bacterial or fungi contamination were observed during the culture period.

References

- [1] Pap, T., Dankbar, B., Wehmeyer, C., Korb-Pap, A., & Sherwood, J. (2020). Synovial fibroblasts and articular tissue remodelling: Role and mechanisms. *Seminars in cell & developmental biology*, 101, 140–145.
- [2] Maglaviceanu, A., Wu, B., & Kapoor, M. (2021). Fibroblast-like synoviocytes: Role in synovial fibrosis associated with osteoarthritis. *Wound repair and regeneration; official publication of the Wound Healing Society [and] the European Tissue Repair Society*, 29(4), 642–649.
- [3] Chang, S. K., Gu, Z., & Brenner, M. B. (2010). Fibroblast-like synoviocytes in inflammatory arthritis pathology: the emerging role of cadherin-11. *Immunological reviews*, 233(1), 256–266.

Disclaimers

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