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Human Fibroblast-Like Synoviocytes (HFLS)

Catalog Number	10HU-133	Cell Number	0.5 million cells/vial
Species	<i>Homo sapiens</i>	Storage Temperature	Liquid Nitrogen

Description

Synovial joints are unique functional elements of the body and provide the ability for locomotion and for physical interaction with the environment. 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 [1]. 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 [2]. These cells play a crucial role in the pathogenesis of chronic inflammatory diseases, such as rheumatoid arthritis [1, 3]. Therefore, Human FLS are an important model to understand articular function in degenerative and inflammatory joint diseases.

iXCells Biotechnologies provides high quality Human Fibroblast-Like Synoviocytes (HFLS), which are isolated from human synovial membrane and cryopreserved at P2, with ≥ 0.5 million cells in each vial. HFLS 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.

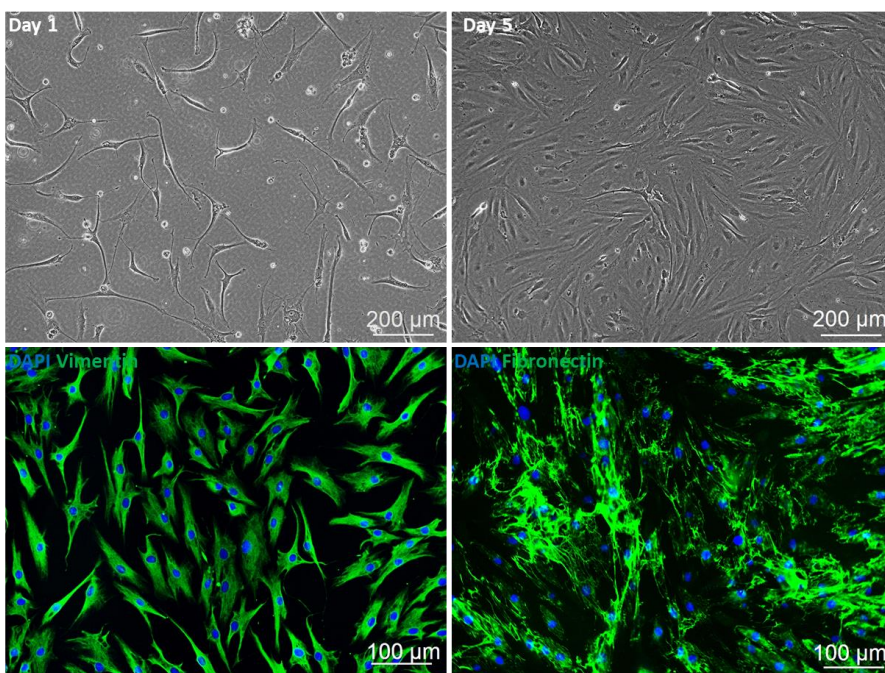


Figure 1. Phase contrast and Immunofluorescence staining with antibodies against Vimentin and Fibronectin of Human Fibroblast-Like Synoviocytes (HFLS).

Product Details

Tissue	Human Synovial Membrane
Package Size	0.5 million cells/vial
Passage Number	P2
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Synoviocyte Growth Medium (Cat# MD-0056)

Protocols

Thawing of Frozen Cells

1. Upon receipt of the frozen Human Fibroblast-Like Synoviocytes (HFLS), 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 **Synoviocyte Growth Medium** (Cat# MD-0056).
4. Centrifuge at 1,000 rpm (~220 g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in Synoviocyte Growth Medium.
6. Culture the cell in a T75 flask or desired vessel. Change medium every other day until cells reach 80-90% confluence. We recommend plating the cells at 5×10^3 cells/cm² density.

Safety Precaution: *it is highly recommended that protective gloves and clothing should be used when handling human cells.*

Standard Culture Procedure

1. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5 mL/T75 flask).
2. Add 3 mL of 0.25% Trypsin-EDTA to the flask and incubate for 3-5 minutes at 37°C. Neutralize the Trypsin by adding 2-3 volumes of cell culture medium.
3. Centrifuge at 1,000 rpm (~220 g) for 5 minutes and resuspend the cells in desired volume of medium.
4. Seed the cells onto a new culture vessel at 5×10^3 cells/cm². Change the medium every other day until cells reach 80-90% confluence.

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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