

Human Chondrocytes-articular (HC-a)

SKU: 10HU-043

PRODUCT SHEET

PRODUCT DESCRIPTION

Human chondrocytes are specialized cell type with highly developed cytoskeleton in human articular cartilage. Chondrocytes have a round or oval shape and fill only 5–10% of the cartilage volume in total [1]. These cells are mainly responsible for cartilage biomechanical properties and extracellular matrix maintaining [2]. Mature chondrocytes produce structural proteins, collagen type 2/ 9/ 11 and aggrecan. Articular chondrocytes also synthesize lubricin, which is significant important on the reduction of friction between the applied cartilage surfaces. Since articular cartilage is a tissue with very low capacity for self-repair, these cells are mainly used for research in cartilage degeneration and regeneration in arthritis including osteoarthritis and rheumatoid arthritis.

Product Details

Catalog Number: 10HU-043

Organism: *Homo Sapiens*, Human

Cell Type: Chondrocytes

Tissue: Human articular cartilage

Disease: Normal

Package Size: 0.5 x 10⁶ cells/vial

Passage Number: P2

Growth Properties: Adherent

Associated Media: Chondrocyte Medium (SKU: MD-0040)

Storage Conditions & Shipment

Product Format/Shipped: Cryopreserved

Storage: Liquid Nitrogen

For Research Use Only

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RELATED PRODUCTS



Chondrocyte Medium
SKU: MD-0040



Human Synoviocytes (HS)
SKU: 10HU-212

Overview of Human Chondrocytes-articular (HC-a)

iXCells Biotechnologies offers HC-a from human articular cartilage (Figure 1). These HC-a are Collagen II positive and Aggrecan positive (Figure 2). HC-a are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi. These cells can be maintained in Chondrocyte Medium (SKU: MD-0040) for at least 3 passages.

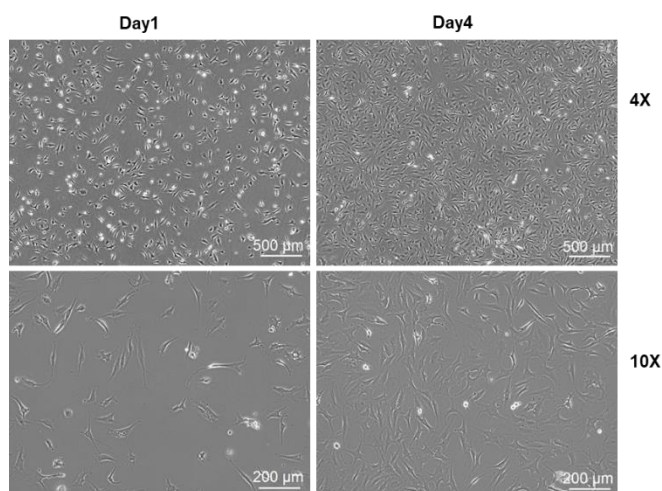


Figure 1. Human Chondrocytes-articular (HC-a) (phase contrast).

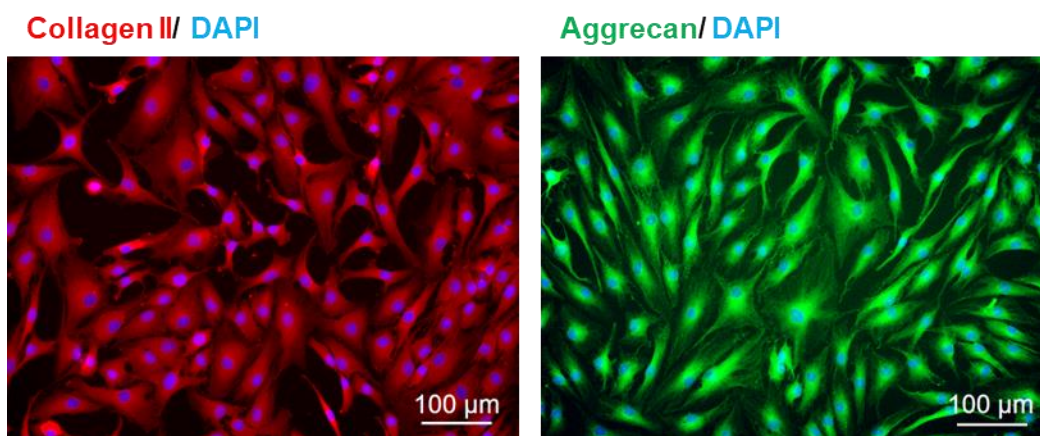


Figure 2. HC-a provided by iXCells are positive for Collagen II and Aggrecan, as shown by immunostaining.

QuickStart Guide – Protocols

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 Chondrocyte Medium (SKU: MD-0040).
4. Centrifuge at 1,000 rpm (~220 g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh Chondrocyte Medium (SKU: MD-0040).
6. Culture the cells in the T75 flask. 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. HC-a can be sub-cultured in Chondrocyte Medium (SKU: MD-0040).
2. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile DPBS (5 mL for one T75 flask).
3. Add 3 mL of 0.25% 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.
4. Centrifuge 1,000 rpm (~220 g) for 5 minutes and resuspend the cells in desired volume of medium.
5. Seed the cells in the new culture vessels at 5×10^3 cells/cm². Change the medium every other day until cells reach 80-90% confluence.

References

[1] Bačenková D, Trebuňová M, Demeterová J, Živčák J. Human Chondrocytes, Metabolism of Articular Cartilage, and Strategies for Application to Tissue Engineering. *Int J Mol Sci*. 2023 Dec 4;24(23):17096. doi: 10.3390/ijms242317096. PMID: 38069417; PMCID: PMC10707713.

[2] Tallheden T, Brittberg M, Peterson L, Lindahl A. Human articular chondrocytes--plasticity and differentiation potential. *Cells Tissues Organs*. 2006;184(2):55-67. doi: 10.1159/000098947. PMID: 17361078.

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