Human Skin Collagen Type I (Lyophilized)

Cat. No. PT002

Lot. No. (See product label)

Product Description

Type I Collagen is the most abundant type of collagen in the human body, as a major structural matrix protein in skin, and many other tissues (bone, tendon, and fibrous connective tissues). There are a number of types of collagen identified to date, and all are composed of molecules containing three polypeptide chains arranged in a triple helical conformation. The types of collagen differ slightly in the primary amino acid sequence of their polypeptide chains. Type I collagen is a heterotrimer composed of one α2(I) chain and two α1(I) chains. Various types of cell surface receptors present on diverse types of mammalian cells recognize the collagen triple helix structure and facilitate cell attachment to collagen materials, including films and scaffolds. The most characterized cell receptors are the integrins α1β1 and α2β1. Many cell types express both forms of integrin, including mesenchymal stem cells (MSCs), fibroblasts, endothelial cells, chondrocytes, osteoblasts, and lymphocytes. Smooth muscle cells interact with collagen via α1β1, and epithelial cells attach via α2β1. Collagen type I is characterized by the presence of three regions on SDS-PAGE corresponding to molecular weights. The alpha region has a molecular weight of 100 kDa and consists of two α1 chains and one α2 chain. The beta region has a molecular weight of 200 kDa and consists of two α1 chains fused together and α1 α2 chains fused together. The gamma region has a molecular weight of 300 kDa and consists of overlapping two α1 and one α2 chains.

Application

Human Skin Collagen Type I (Lyophilized) is ideal for many

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	applications including coating tissue culture surfaces to support cell attachment and growth or for making hydrogel.
Biological Source	Human
Storage/Stability	-20 °C
Shelf Life	6 months after opening
Note	Making 3D Collagen Gels Note: All procedures should be performed in a cold room or on ice. All reagents should be cooled prior to making the hydrogel. To prevent premature gelation, keep solutions between 2-10°C. Concentrations will need to be tested to determine the optimal gel concentration for each application. Human Skin Collagen Type I(Lyophilized) has been tested and found to form a gel at ≥ 0.5 mg/mL final concentration. 1. Reconstitute Human Skin Collagen Type I(Lyophilized) in 10-20 mM HCl with a pH of 1.9-2.1 to desired concentration. It is recommended to use ultrapure sterile water to make the 10-20 mM HCl. 2. Prepare 10x culture medium or 10x PBS. 3. Combine 9 volumes of chilled collagen solution with 1 volume of chilled 10x concentrated medium or 10x PBS. 4. Gently swirl or pipette the mixture repeatedly. 5. Adjust the pH to 7.0-8.0 using NaOH, preferably around 7.4. Concentration and pH will affect the speed and strength of the gel. Once pH has been adjusted, cells can be added to the solution if desired.

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6. Incubate at 37°C for 30-120 minutes for gel formation depending on final concentration.

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