ANGIO-PROTEOMIE

DATA SHEET

Bovine Type I Collagen Solution

ORDERING INFORMATION

Product Name Bovine Type I Collagen Solution
Catalog Number: **cAP-17**
Size: 100mg in 0.2M acetic acid (~ 3mg/ml in 0.2M acetic acid, >99% purity)
Storage: at 2-8 °C
Applications: Culture ware surface coating and 3D hydrogel preparation

Product Description

Bovine Type I collagen solution, is approximately 3 mg/mL, pH 2, available in 100 mg size, and produced by aseptic processing. Bovine Type I collagen solution is about 97% Type I collagen with the remainder being comprised of Type III collagen. Bovine Type I collagen solution contains a high monomer content as judged by gel permeation chromatography. Type I collagen is a major structural component of skin, bone, tendon, and other fibrous connective tissues, and differs from other collagens by its low lysine hydroxylation and low carbohydrate composition. Although a number of types of collagen have been identified, all are composed of molecules containing three polypeptide chains arranged in a triple helical conformation. Slight differences in the primary structure (amino acid sequence) establish differences between the types. The amino acid sequence of the primary structure is mainly a repeating motif with glycine in every third position with proline or 4-hydroxyproline frequently preceding the glycine residue. Type I collagen is a heterotrimer composed of two alpha1(I) chains and one alpha2(I) chain, which spontaneously form a triple helix scaffold at neutral pH and 37°C. Control of cell growth, differentiation, and apoptosis in multicellular organisms is dependent on adhesion of cells to the extracellular matrix (ECM). Given that Type I collagen is an abundant component of the ECM, cells cultured in three dimensional (3D) collagen gels simulate the in vivo cell environment better than traditional 2D systems. This has been shown for a number of cell types including cardiac and corneal fibroblasts, hepatic stellate cells (HSCs), and neuroblastoma cells. Several diseases can affect the mechanical properties of the ECM while other disease states may be caused by changes in the density or rigidity of the ECM. Since Type I collagen is a key determinant of tensile properties of the ECM, 3D collagen gels are useful in studies of mechanotransduction, cell signaling involving the transformation of mechanical signals into biochemical signals. This product is prepared from collagen extracted from bovine hide and contains higher monomer content. It is supplied as a ~3 mg/ml (0.3%) aqueous solution in 0.2 M Acetic Acid (pH around 2.0). Starting material was isolated from a closed herd and purified using a manufacturing process following applicable aspects of cGMP. This process contains built-in, validated steps to insure inactivation of possible prion and/or viral contaminants. The product is sterilized by membrane filtration and has been tested, and confirmed negative, for bacterial and fungal contamination.

Characterization:

Storage/Stability: The product ships on frozen gel packs with storage at 2-8·C recommended. Do not freeze. The expiration date is printed on the product label and certificate of analysis for each specific lot. The expiration date is applicable when product is handled and stored as directed.

Purity: Bovine Type I Collagen Solution is ultrapure collagen (99% by SDS-PAGE, 97% Type I with remainder Type III collagen). SDS-PAGE shows the typical, and banding pattern. Gradual breakdown may occur over long periods of time thus creating atypical banding patterns.

Concentration: The concentration of Bovine Type I Collagen Solution is approximately 3.0 mg/mL (Sircol Assay). The actual concentration is printed on the product label and certificate of analysis for each specific lot.

pH: Supplied in 0.2M Acetic acid (pH ~2.0).

Endotoxin: < 1.0 EU/ml

Sterility Testing: This product has been tested for 14 days after incubation in a 37°C incubator. It is free of bacterial and fungal contamination. Product has shown to be negative with respect to mycoplasma contamination by Real-Time PCR

Coating Procedure:

Note: Use these recommendations as guidelines to determine the optimal coating conditions for your culture system.

1. Remove required quantity of collagen from the bottle and dispense into a dilution vessel.
2. Dilute Bovine Collagen in Sterile DI H2O to ~50 to 100µg/ml (~1:30). A 0.01N HCl solution may also be used.
3. Swirl contents gently until material is completely mixed.
4. Add appropriate amount of bovine collagen material to the culture surface ensuring that the entire surface is coated.
5. Incubate at room temperature or 37°C, covered, for 1-2 hours.
6. After incubation, aspirate any remaining material.
7. Rinse coated surfaces carefully with sterile medium or PBS, avoid scratching surfaces.
8. Coated surfaces are ready for use. They may also be stored at 2-8°C damp or air dried if sterility is maintained.

3-D Gel Preparation Procedure:

1. Slowly add 1 part of chilled 10X PBS or 10X culture media to 8 parts of chilled collagen solution with gentle swirling.
2. Adjust pH of mixture to 7.2–7.6 using sterile 0.1 N NaOH. Monitor pH adjustment carefully (pH meter, phenol red, or pH paper).
3. Adjust final volume to a total of 10 parts with sterile water.
4. To prevent gelation, maintain temperature of mixture at 2–10·C.
5. To form gel, warm to 37·C. Allow approximately 30 minutes for gel formation.

Related Products

Quick Coating Solution	**cAP-01**	240ml	Angio-Proteomie
Cell Freezing Solution (FBS)	**cAP-22**	50ml	Angio-Proteomie
Cell Freezing Solution (Non-FBS)	**cAP-22B**	50ml	Angio-Proteomie
HBSS w/o Ca^{2+} , Mg^{2+}	**cAP-11**	100ml	Angio-Proteomie
Trypsin/EDTA Solution	**cAP-23**	100ml	Angio-Proteomie
Trypsin Neutralization Solution	**cAP-28**	100ml	Angio-Proteomie
ITS (100x)	**cAP-26**	10ml	Angio-Proteomie
L-Glutamine-MAXIMUM (100x)	**cAP-27**	100ml	Angio-Proteomie
Human Plasma Fibronectin Solution	**cAP-42**	1mg/ml	Angio-Proteomie
Bovine Type I Collagen Solution	**cAP-17**	100mg	Angio-Proteomie

THESE PRODUCTS ARE FOR RESEARCH USE ONLY

Caution: Handling human and animal tissue derived products is potentially bio-hazardous. Although each cell strain is tested negative for HIV, HBV and HCV DNA, or pathogens, diagnostic tests are not necessarily 100% accurate; therefore proper precautions must be taken to avoid inadvertent exposure. Always wear gloves and safety glasses when working with these materials. Never mouth pipette. We recommend following the universal procedures for handling products of human origin as the minimum precaution against contamination.

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