

SureCoat™

PURIFIED BOVINE COLLAGEN SOLUTION FOR SURFACE COATING

Catalog Number **5057**

Product Description

Advanced BioMatrix's collagen solution, SureCoat™, is approximately 3 mg/mL. SureCoat™ is about 97% Type I collagen with the remainder being comprised of Type III collagen. SureCoat™ contains a high monomer content as judged by gel permeation chromatography. SureCoat™ Type I collagen is excellent for coating surfaces but is not optimal for 3D gels.

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.^{1,2} Type I collagen is a heterotrimer composed of two $\alpha 1(I)$ chains and one $\alpha 2(I)$ chain, which spontaneously form a triple helix scaffold at neutral pH and 37°C.

Different collagen subtypes are recognized by a structurally and functionally diverse group of cell surface receptors, which recognize the collagen triple helix. The best-known collagen receptors are the integrins $\alpha 1\beta 1$ and $\alpha 2\beta 1$. $\alpha 1\beta 1$ is the major integrin on smooth muscle cells, while $\alpha 2\beta 1$ is the major form on epithelial cells and platelets. Both forms are expressed on many cell types including fibroblasts, endothelial cells, osteoblasts, chondrocytes, and lymphocytes. Some cell types may also express other collagen receptors such as glycoprotein VI (GPVI), which mediates both adhesion and signaling in platelets.⁷ Other collagen receptors include discoidin domain receptors, leukocyte-associated IG-like receptor-1, and members of the mannose receptor family.^{8,9}

This product is prepared from collagen extracted from bovine hide and contains a high monomer content. It is supplied as a ~3 mg/ml (0.3%) aqueous solution in 0.01 M HCl (pH ~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

Purity: SureCoat™ is ultrapure collagen (~99.9% SDS-PAGE, ~97% Type I with remainder Type III collagen). SDS-PAGE shows the typical α , β and γ banding pattern. Gradual breakdown may occur over long periods of time thus creating atypical banding patterns.

Concentration: The concentration of SureCoat™ collagen is approximately 3.0 mg/mL. The actual concentration is printed on the product label and certificate of analysis for each specific lot.

pH: Supplied in 0.01M HCl (pH ~2.0).

Endotoxin: ≤ 1.0 EU/ml

Storage/Stability: The product ships on frozen gel packs with storage at 2–10°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.

Precautions and Disclaimer

This product is for R&D use only and is not intended for human or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Coating Procedure

1. Transfer desired volume of collagen solution from the bottle to a dilution vessel as required. Dilute to desired concentration using sterile 0.01 N HCl solution. A typical working concentration may range from 10 to 100 μ g/ml.

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

2. Add appropriate amount of diluted SureCoat™ material to the culture surface.

3. Incubate at room temperature or 37°C, covered, for 1-2 hours.

4. After incubation, aspirate any remaining material.

5. Rinse coated surfaces carefully with sterile medium or PBS, avoid scratching surfaces.

6. Coated surfaces are ready for use. They may also be stored at 2-8°C damp or air dried if sterility is maintained.

References

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