

CellAdhere™ Type I Collagen, Bovine, Solution

Purified bovine collagen for tissue engineering research, cell culture, and biochemistry

Catalog # 07001 50 mL



Scientists Helping Scientists™ | WWW.STEMCELL.COM

TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713

INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM

FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

Product Description

Type I Collagen is the most abundant type of collagen in the human body and is a major structural protein prevalent in skin, bone, tendon, and other fibrous connective tissues (Bornstein et al.). All collagens are characterized by a secondary protein structure consisting of three polypeptide chains wrapped around one another in a triple helical arrangement (Tanzer). The different types of collagen vary in the primary amino acid sequence of their polypeptide chains, with type I collagen comprising two identical $\alpha 1(I)$ chains and one $\alpha 2(I)$ chain that spontaneously form the triple helix in solution (Heino).

CellAdhere™ Type I Collagen, Bovine, Solution is prepared from collagen extracted from bovine hide and contains a high monomer content. Product contains about 97% type I collagen with the remainder composed of type III collagen. It is supplied at a concentration of approximately 6 mg/mL (0.6%) aqueous solution in 0.01 M HCl (pH at about 2.0). Starting material was isolated from a closed herd and purified using a highly controlled manufacturing process. This process contains validated steps to ensure inactivation of possible prion and/or viral contaminants.

This product is ideal for coating surfaces with a thin layer of protein to support cell attachment, or for use as a firm gel in 3D cell culture applications (Roeder et al.; Zaman et al.). The optimal protein concentration may vary depending on the cell type being used, and therefore must be titrated for best results.

Properties

- Storage:** Store at 2 - 8°C.
- Shelf Life:** Stable for 6 months from date of receipt.
- Contains:**
- Approximately 97% type I collagen
 - Type III collagen

Handling / Directions For Use

PREPARING COLLAGEN-COATED TISSUE CULTUREWARE (2D COATING)

1. Dilute CellAdhere™ Type I Collagen, Bovine, Solution with sterile water or 0.01 N HCl to obtain desired concentration.
NOTE: Different dilutions will need to be tested to determine the optimal concentration required for each culture system.
Typical coating concentrations range between 50 - 100 µg/mL.
2. Mix gently until everything has been solubilized.
3. Add desired amount of diluted Type I Collagen solution to the cultureware to be coated. For example, use 1 mL to coat a 35 mm Culture Dish (Catalog #27100).
4. Cover coated cultureware to protect from contamination.
5. Incubate at room temperature (15 - 25°C) for 1 - 2 hours.
6. Aspirate excess solution. Avoid scratching the coated surface.
7. Rinse coated cultureware with sterile D-PBS Without Ca⁺⁺ and Mg⁺⁺ (Catalog #37350) or culture medium.
8. Use coated cultureware immediately. Alternatively, keep sterile and store at 2 - 8°C damp or air dried.

PREPARING 3D COLLAGEN GELS (3D COATING)

1. Slowly add 1 part of chilled CellAdhere™ Type I Collagen, Bovine, Solution to 8 parts of chilled, sterile D-PBS, 10X Concentrate Without Ca⁺⁺ and Mg⁺⁺ (10X PBS; Catalog #37354) or 10X culture medium. Mix gently by swirling.
For example, add 1 mL of chilled CellAdhere™ Type I Collagen, Bovine, Solution to 8 mL of chilled, sterile 10X PBS.
2. Slowly add sterile 0.1 M NaOH to reach a pH of 7.2 - 7.6.

3. Add sterile water to reach a final volume of 10 parts. Following the example in step 1, add sterile water to reach a final volume of 10 mL.
NOTE: If not used immediately, store diluted Type I Collagen solution at 2 - 8°C. This prevents gelation.
4. Add desired amount of diluted Type I Collagen solution on the surface of the cultureware to be coated.
5. Place coated cultureware at 37°C and allow 1.5 - 2 hours for gel to form.

References

- Bornstein P & Sage H. (1980) Structurally distinct collagen types. *Annu Rev Biochem* 49: 957–1003.
- Heino J. (2007) The collagen family members as cell adhesion proteins. *Bioessays* 29(10): 1001–10.
- Roeder BA et al. (2002) Tensile mechanical properties of three-dimensional type I collagen extracellular matrices with varied microstructure. *J Biomech Eng* 124(2): 214–22.
- Tanzer ML. (1973) Cross-linking of collagen. *Science* 180(4086): 561–6.
- Zaman MH et al. (2006) Migration of tumor cells in 3D matrices is governed by matrix stiffness along with cell-matrix adhesion and proteolysis. *Proc Natl Acad Sci USA* 103(29): 10889–94.

STEMCELL TECHNOLOGIES INC.'S QUALITY MANAGEMENT SYSTEM IS CERTIFIED TO ISO 13485. PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED.

Copyright © 2019 by STEMCELL Technologies Inc. All rights reserved including graphics and images. STEMCELL Technologies & Design, STEMCELL Shield Design, Scientists Helping Scientists, and CellAdhere are trademarks of STEMCELL Technologies Canada Inc. All other trademarks are the property of their respective holders. While STEMCELL has made all reasonable efforts to ensure that the information provided by STEMCELL and its suppliers is correct, it makes no warranties or representations as to the accuracy or completeness of such information.