Tribioscience

Rat Collagen I

Catalog	Unit Size
TBS8098-5	5 mL
TBS8098-35	35 mL

DESCRIPTION

Type I collagen is the most abundant structural collagen in most tissues, including skin, bone, tendons, and ligaments. It is composed of two α1 chains and one α2 chain, forming a triple-helix structure. It plays a crucial role in cell differentiation, proliferation, and tissue repair. It is actively involved in the extracellular matrix, providing structural support and influencing cell activities such as adhesion, growth, and tissue regeneration.

SPECIFICATIONS

Species: Rat
Source: Rat tail tendons
Protein Concentration: 3 mg/mL
pH: 3.5
Endotoxin level: ⩽ 20 EU/mL
Sterility Testing: No bacterial or fungal growth observed after 14 days in culture.
Functional Assay: Promotes adherence of HT-1080 cell line.
Gelling: Gels when neutralized.
Viral Testing: No mycoplasma contamination detected.

APPLICATION

- Qualified for general cell culture.
- Used as a hydrogel or thin coating for tissue culture vessels.
- Suitable for supplementing customized coatings, hydrogels, or medium formulations for cell culture.

PACK SIZE

5mL or 35mL /bottle

STORAGE

The product can be stored for 1 year from the manufacture date at 4°C.

PROTOCOL

Coating Procedure for fibroblast cell lines

1. Place an appropriate amount of Type I collagen to the culture surface. Note: 0.6 - 1ml per 35nm dish (0.06-0.1 ml per cm).
Determine the optical coating conditions for your culture system.
Note: Less than 0.5ml of solution per 35mm dish cannot be spread over the full surface of the dish because the collagen solution is high in viscosity.
When reducing the amount of collagen per culture dish, dilute the collagen solution with 0.025M Acetic acid solution.
2. In a sterile hood, open the cap of the culture dishes and air-dry for 30-60 minutes or until the surface is completely dry.
3. Rinse the culture dish with sterile PBS 2-3 times so that is neutralized.
4. Dried coated dishes can be sterilized 30-60 minutes by exposure to UV light in a sterile tissue culture hood.
5. Rinse the dish once with sterile PBS or medium.
6. Coated surface is ready for use. Pour the cell suspension into the dishes and culture as usual. Note: The dishes can be used immediately or stored under sterile conditions for up to two weeks at 4°C.

Coating Procedure for human mammary epithelial cells

1. Transfer desired volume of collagen solution from the bottle to a dilution vessel as required. Dilute to desired concentration using sterile 0.025M Acetic acid solution. A typical working concentration may range from 10 to 100 ug/ml. (1:300 - 1:30)
Note: Determine the optimal concentration for your culture system.
2. Place an appropriate amount of Type I collagen to the culture system. Note: 0.6-1ml per 35mm dish (0.06-0.1 ml per cm2) Determine the optimal coating conditions for your culture system.
Note: Less than 0.5ml of solution per 35mm dish

cannot be spread over the full surface of the dish because the collagen solution is high in viscosity.
3. In a sterile hood, open the cap of the culture dishes and air-dry for 30-60 minutes or until the surface is completely dry.
4. Rinse the culture dish with sterile PBS 2-3 times so that it neutralizes.
5. Dried coated dishes can be sterilized 30-60 minutes by exposure to UV light in a sterile tissue culture hood.
6. Rinse the dish once with sterile PBS or medium.
7. Coated surface is ready to use. Pour the cell suspension into the dishes and culture as usual.
Note: The dishes can be used immediately or stored under sterile conditions for up to two weeks at 4°C.

3-D Gel Preparation Procedure

1. Prepare collagen gel medium. Mix each reagent in chilled condition. If serum is required, add the serum. Mix the solution by pipetting until the collagen solution is completely mixed up.

Collagen gel medium preparation (10mL):

Chilled Medium or PBS (5X concentration):	2ml
Chilled Type I collagen:	8ml

2. After mixing, keep the solution on ice. Adjust pH of mixture to 7.2-7.6 using sterile 0.1M NaOH (200-250ul NaOH for 10ml mixture). The pH of the collagen gel solution should be neutral, which is indicated by the pink/red color of phenol red in the 5X medium.

3-D Culture:

1. Pipette a proper size of a chilled collagen gel solution onto a tissue culture plate of dish.
Note: Suggested Collagen Gel Amounts Culture
2. Immediately transfer to 37°C incubator for 60 minutes to initiate polymerization of the collagen. The polymerized gel will look cloudy.
3. After formation of the collagen gel, seed desired cells (0.1 to 2.0 X10^6 cells/ml) onto the collagen gel.
4. Overlay polymerized collagen gel with culture media.
5. Incubate cells overnight or several days at 37°C with CO2. Change medium daily.
6. Cells can be visualized using phage contrast microscopy and can be directly fixed and stained within the collagen.

RELATED PRODUCTS

MCF-7 Cell Complete Medium (TBS8047)
DMEM Medium (TBS8061)
RPMI-1640 (TBS8063)
0.1% Gelatin Solution (TBS8004)
2x HBS, pH7.05 (TBS5076)
Cell Culture Grad Water (TBS5050)
LB Medium (TBS8056)
SOB Medium (TBS8057)
SOC Broth Medium (TBS8058)
2xYT Broth Medium (TBS8059)
Collagen Type I Solution (TBS8096)

Research Use Only