Rat Tail Tendon Collagen Type I(liquid)

Cat: C8065
Size: 10mg, 5mg/mL, dissolved in 0.006mol /L HAc, sterile.
Storage: 4℃, do not freeze, valid for 1 year.

Introduction:

Rat tail tendon collagen type I is prepared by the Birkedal-Hansen method through acetic acid extraction, sodium chloride precipitation, and disodium hydrogen phosphate precipitation. The rat tail collagen of our company can be used in coated cell culture vessels to culture some cells that are not easily adherent in ordinary cell culture vessels. It can also be used to prepare three-dimensional glue, which can make cells grow in three-dimensional environment by simulating the real growth environment of cells in vivo. When used as a surface attachment, collagen can be used to study tumor cell invasion and migration, culture or differentiation studies of monocytes and macrophages, and autoradiography studies of granulocytes and macrophages. When used as a gel, collagen facilitates cell culture in vitro and enhances the expression of cell-specific morphology and function.

This product is derived from rat tail of SD rat and dissolved in 0.006M acetic acid solution at a concentration of 5mg/mL.

1. Adhesion and growth of PC-12 cells were examined in cell culture dishes using Solarbio rat collagen Type I coated cells.
2. Three-dimensional gel with certain strength could be formed when the concentration was above 1mg/mL and the pH was about 7. It was found that NIH-3T3 cells grew normally in the three-dimensional gel and PC-12 cells grew normally on the surface of the three-dimensional gel.

Protocols:

1. Thin layer coating is used(only for reference):

Recommended concentration: 1-5μg/cm^2, taking a coating concentration of 2μg/cm as an example: Dilute collagen to 0.012mg/mL with sterile 0.006M(0.36g/L) acetic acid. Add to the appropriate culture vessel in the following table volume:

size	Surface area(cm^2, per well or dish)	Volume(μL) of collagen to add 0.012mg/mL
96-well cell culture dish	0.3	50
24-well cell culture dish	1.9	300
12-well cell culture dish	3.8	600
6-well cell culture dish	9.5	1580
35 mm cell culture dish	8	1330
60 mm cell culture dish	21	3500
100 mm cell culture dish	55	9170

Make sure the collagen solution is spread all over the surface of the dish and leave the lid on a

super-clean table overnight to dry. It can also be used directly after leaving it at room temperature for 1 hour and washing it with 1×PBS solution 3-4 times. The well-wrapped utensils can be stored at 4℃ for at least 3 months.

2. Three-dimensional glue use method (for reference only):

Rat tail collagen type I can form three-dimensional glue with certain strength when the concentration is above 1mg/mL and the pH is about 7. It is recommended to form a gel concentration of 1-2mg/mL. Collagen is dissolved in 0.006M acetic acid and needs to be neutralized by 0.1mol/L NaOH of 0.06×volume in the gelation process.

Solution needed(all sterile, pre-cooled): 10×PBS(may contain 10mg/L phenol red for pH indication)or 10×culture solution, 0.1mol/L NaOH.

1. Place the following items on ice: sterile centrifuge tube, Rat tail Collagen Type I, sterile 10×PBS, sterile 0.1M NaOH.
2. Determine the final volume of the final concentration required for the solution of collagen I to be used.
3. Perform the following steps under sterile conditions:

3.1 Add 10×PBS (final volume /10) mL to a sterile centrifuge tube.

3.2 Calculate the volume of collagen I to be used (do not add to the tube until step 3.5)

Final volume x final Collagen I concentration (mg/mL)/specific concentration on bottle label (see specific lot number).

= Volume of collagen to be added

3.3 Add (volume of collagen to be added ×0.06) mL sterile pre-cooling 0.1 M NaOH to 10 x PBS solution.

3.4 Add the following volume of cell suspension or other culture solution to solution 3.3: Add the volume of cell suspension or other culture solution =V (final) -V (collagen) -V (10×PBS) -V (0.1 M NaOH).

3.5 Add collagen type I immediately mix well and set aside on ice.

4. The collagen Type I solution can be used immediately or left on ice for 2-3h.
5. To use, add the solution to a culture vessel under sterile conditions. Leave the culture vessel at room temperature for 30 minutes for the glue to set, add the appropriate volume of cell culture solution, and transfer to the incubator for culture.

Notes:

1. Rat tail collagen type I can quickly gel when pH is neutral at room temperature, and should be kept as low as possible during operation.
2. The whole operation should be carried out aseptically in a sterile environment to avoid contamination that may affect cell growth.
3. For your safety and health, please wear a lab coat and disposable gloves during operation.
4. This product is for scientific research purposes only.