Porcine collagen type I

Ver 1.0

Cat. No.: B00-01A, B00-01B, B00-01C

Description

Collagen type I is the most abundant component of the extracellular matrix in animals, including humans. It is a key structural protein that provides strength and elasticity to connective tissues such as skin, bones, cartilage, and tendons. Therefore, purified collagen has a wide variety of applications in medical and life science research, including tissue/cell culture, tissue engineering, tissue 3D scaffold, medical devices, tissue reconstruction and tissue repair.

Expercy provide collagen type I purified from the porcine tendon. Comparing with collagen from other resources, porcine collagen has advantages in high mechanical strength, high purity, high stability, low toxin, low irritation, etc., which make it one of the best collagen types for medical application and scientific.

Specification

Product Type	Solution	Lyophilized
Endotoxin LAL	<0.5 EU/ml or <1.0 EU/ml	
Purity	≥ 95% by SDS PAGE	
pH	2.0 – 4.0	-
Osmolality	≤ 35 mOsmo H_2O/Kg	
Sterility	Sterile filtered	-
Storage	2–8°C (Avoid freeze)	-20°C

Reconstitution

It is recommended to dissolve the lyophilized material in a solution of 0.5M acetic acid or 0.01N HCl.

To prepare collagen gels, the contents of the bottle should be dissolved in 3.3 ml of sterile 0.5M acetic acid or 0.01N HCl each, resulting in a final concentration of 3 mg/ml.

To coat culture dishes, the final concentration should be between 1 and 2 mg/ml.

Note: When dissolving the lyophilizate, do not stir it. Instead, pour the acid over the lyophilizate and allow it to stand for several hours until fully dissolved. In some cases, an incubation of up to 24 hours at 15 to 25°C may be necessary to achieve complete dissolution.

Gelling procedure

1. Cool the collagen solution and all buffers to 2 - 8°C.
2. Calculate the concentration and final volume of collagen to be used. See Example Calculation.
3. Calculate the amount of buffer needed so that collagen is at the desired concentration in 1X PBS or culture medium with normal osmolality and neutral pH. See Example Calculation.

Example Calculation

V_t=Total volume of collagen gel desired
Volume of collagen needed (V_1) = (Final conc. of collagen) x (Total Volume (V_t)) / Initial conc. of collagen
Volume of 10X PBS needed (V_2) = Total Volume (V_t) / 10
Volume of 1N NaOH need (V_3) = V_1 x 0.025
Volume of dH2O needed (V_4) = $V_t - (V_1+V_2+V_3)$

4. In a sterile tube, mix dH_2O, 1N NaOH, and buffer (Cooled 10 X PBS or culture media) at 2 - 8°C.
5. Slowly pipet the collagen into the tube, and gently pipet solution up and down to mix well. The resulting mixture should achieve a pH of 6.5-7.5. (optimal pH is 7.0).
6. Quickly transfer the collagen mixture to the desired plates or dishes and store them on ice. The mixture may solidify quickly at room temperature. Herein, cells could be seeded into the mixture
7. Incubate the neutralized collagen at 37°C cell culture incubator for 30-40 mins, or until the collagen forms a firm gel.
   Note: Do not disturb the gel during the gelation process.

Coating procedure

1. Calculate the volume needed for experimentation.
2. Dilute collagen solution to 50-100 µg/mL using 0.01M HCl.
3. Add diluted collagen solution to coat dishes with 5-10 µg/cm^2.
4. Incubate at room temperature for 1 hours.
5. Carefully aspirate the remaining solution.
6. Rinse coated surface 3 times carefully with sterile PBS or serum-free medium to remove the acid.
7. The plate may be used immediately or air dried. They could be stored at 2-8°C for up to one week under sterile condition.