Cell Culture Grade Porcine Type I Collagen

Catalog # 1203

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Collagen, the most abundant protein in vertebrates, is observed in skin, cartilage, bone, intervertebral discs, blood vessels, tendons, ligaments, and corneas, and is the main component of the extracellular matrix (ECM). Type I collagen consists of two identical alpha 1 chains and one distinct alpha 2 chain (1), forming a triple helix formation known as tropocollagen. This triple-stranded helical conformation increases structural strength and resistance to enzymatic degradation in tissue and plays a key role in assembling the ECM.

Collagen is useful for facilitating tissue regeneration and/or site-specific drug delivery (2) because of its properties such as low antigenicity, low toxicity, high water solubility, and high biodegradability. In particular, type I collagen binds integrins (3,4) facilitating cell migration (5), attachment (4,6), and proliferation and differentiation (3,6). Although atelocollagen, in which the telopeptides on the N- and C-terminals are removed from tropocollagen by pepsin digestion, is widely used in industrial purposes, tropocollagen may be beneficial as the native collagen scaffold containing cross-linked telopeptides.

Chondrex, Inc. provides an acid soluble type I tropocollagen solution which can be used for traditional two-dimensional (2D) systems as well as a scaffold in three dimensional (3D) gels for simulating cell growth in fibroblasts (7,8) and chondrocytes (9). To determine the individual types of collagen, please inquire about Chondrex, Inc.'s "Tips for Collagen Solubilization" protocols, as well as ELISA detection kits for type I collagen and type II collagen. Please visit www.chondrex.com or contact support@chondrex.com for more details

DESCRIPTION:	Acid soluble porcine type I collagen solution
APPLICATION:	Use for two-dimensional (2D) systems as well as a scaffold in three dimensional (3D) gels for simulating cell growth in fibroblasts and chondrocytes.
QUANTITY:	4 mg/ml x 12.5 ml (sterile filtered)
FORM:	Solution in 0.01M HCl
SOURCE:	Porcine
ENDOTOXIN:	Less than 10 EU/ml
PURITY:	>95% Type I collagen
STORAGE:	4°C
STABILITY:	6 months
PROTOCOL:	PLATE COATING (NOTE: an optimized coating condition is required for your culture system)

1. Dilute the 4 mg/ml collagen with 0.02M HCl at 50 to 100 µg/ml.
2. Gently mix the diluted solution.
3. Add an appropriate volume of diluted collagen solution into wells or plates.

   NOTE: Ensure the entire surface is coated.

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4. Incubate at room temperature or 37°C for 1-2 hours.
5. Remove all solution.
6. Rinse coated surfaces carefully with culture media or PBS.
7. The coated well or plates can be stored at 2-8°C or air dried if sterility is maintained.

THREE-DIMENSIONAL (3D) GEL PREPRATION PROCEDURES

1. Dilute the collagen solution with equal volume of cold sterilized PBS (final 2 mg/ml).
2. Add an appropriate volume of the diluted collagen solution in wells or plates.
3. Incubate at 37°C for 30-60 minutes.
4. The gel can be stored at 2-8°C or dried if sterility is maintained.

NOTES: N/A

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