Tropoelastin, Human

RECOMBINANT, LYOPHILIZED, POWDER
Catalog Number 5052

Product Description
Tropoelastin is the precursor to the elastin molecule. Tropoelastin is not normally available in its native state since it becomes cross-linked immediately after its synthesis by the cell and during its export into the extracellular matrix.

Elastin is found in many tissues of the body including the skin, arterial walls and ligaments. Elastin aggregates are responsible for the stretch properties of skin, arterial walls and ligaments, and elastin is implicated in several hereditary diseases, including cutis laxa (where the elasticity of the skin is lost) and elastoderma (similar to cutis laxa but with grape-like accumulations of elastin in the dermis). Elastin confers strength and elasticity to tissues and organs.

The unusual and highly characteristic amino acid composition of this protein accounts for its great hydrophobicity. It contains one-third glycine amino acids and several lysine derivatives that serve as covalent cross-links between protein monomers. Elastin is thus a three-dimensional network with 60-70 amino acids between two cross-linking points. This molecular architecture is determinant for its elastic properties, insolubility and resistance to proteolysis.

Advanced BioMatrix's human tropoelastin is derived from recombinant processing methods. The product is supplied as a sterile, lyophilized powder containing 1 mg per vial.

Characterization

Identity/Purity: The identity and purity of tropoelastin is qualitatively evaluated using electrophoresis (SDS-PAGE).

Quantity: Tropoelastin is supplied as a lyophilized powder in a vial containing 1 mg.

Sterility: No growth – final product is terminally sterilized using low dose e-beam irradiation.

Endotoxin: ≤10 EU/ml

Storage: This product is stored at -20°C prior to solubilization and is shipped on frozen gel packs. The product is recommended to be stored at 2–10 °C after reconstitution.

Stability: The product shelf life is 24 months when storage at -20°C. The product shelf life after reconstitution is 3 months when stored at 2- 10°C.

Cell Adherence Assay: To demonstrate the bioactivity, human dermal fibroblasts were seeded onto surfaces coated with tropoelastin in serum free conditions. All surfaces were blocked with a solution containing 1% BSA. Cells were then allowed to attach for one (1) hour at 37°C. The results indicate significant cell attachment bioactivity of tropoelastin. The control surfaces showed only minimal cell adherence.

Precautions and Disclaimer

This product is for R&D use only and is not intended for human or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Procedure

1. Add 1 ml of sterile 0.25% glacial acetic acid solution to the tropoelastin serum vial containing 1 mg.

2. Mix contents gently until material is completely solubilized. The solution may remain slightly hazy.

3. Transfer desired volume of solution from the serum vial to a dilution vessel if required. Further dilute to desired concentration using sterile 0.25% Acetic Acid solution. A typical working concentration may range from 1 to 50 µg/ml.

Note: Use these recommendations as guidelines to determine the optimal coating conditions for your culture system.

4. Add appropriate amount of diluted tropoelastin material to the culture surface.

5. Incubate at room temperature or 37°C, covered, for 1-2 hours.

6. After incubation, aspirate any remaining material.

7. Rinse coated surfaces carefully with sterile dH2O– avoid scratching surfaces.

8. Coated surfaces are ready for use. They may also be stored at 2-10°C damp or air dried if sterility is maintained.

Note: To maintain sterility, perform all operations in a laminar flow hood employing aseptic techniques.

References

J. Holst, S. Watson, M. Lord, S. Eamegdool, D. Bax, L. Nivison-Smith, A. Kondyurin, L. Ma, A. Oberhauser, A. Weiss & J. Rasko, "Substrate elasticity provides mechanical signals for the expansion of hemopoietic stem and progenitor cells", Nature Biotechnology Volume 28, Number 10, October 2010, Pages 1123-1130.

Beth A. Kozel , Hiroshi Wachi§, Elaine C. Davis¶, and Robert P. Mecham, Domains in Tropoelastin That Mediate Elastin Deposition *in Vitro* and *in Vivo*, J. Biol. Chem., Vol. 278, Issue 20, 18491-18498, May 16, 2003