



Seallagen-MCT

(Technical Grade Echinoderm Collagen)

Technical Data Sheet

Product Name: Seallagen-MCT (Technical Grade Echinoderm MCT Collagen)

CAS No.: 9007-34-5 / 9007-28-7

Presentations: Lyophilized Powder / Acid Solution

Catalog No.: MEB-MCT-L-100 to 1000 / MEB-MCT-S-100 to 1000

General Information:

Marine Essence Biosciences offers highly purified, standardized Seallagen-MCT (technical grade echinoderm MCT collagen) matrices with unique properties for expansion of medical technologies and progress of novel cell-based therapies. Seallagen-MCT shows excellent biocompatibility and safety, due to key biological properties, such as biodegradability and low antigenicity, reducing the risk of serious disease transmission.

Specifications*:

Parameter	Specification	Method
Color	White to Off White/ Clear to Slightly Opaque	Organoleptic
Appearance	Fibrillar Powder/ Liquid Solution	Organoleptic
Coliforms	< 100 cfu/g	USP Chapter <61>
Microbial Count	< 1000 cfu/g	USP Chapter <61>
Molds and Yeast	< 100 cfu/g	USP Chapter <61>
Heavy Metals	< 2.4 ppm	AOAC 993.14 Mod.
Collagen Purity	> 85% (**)	SDS-Page Electrophoresis
Collagen Identity	> 95% (^)	FTIR Spectrometry
Collagen Microstructure	Fibrillar	Optical Microscopy (40x)
Collagen Concentration	> 800 mg/g	Hydroxyproline Assay
Glycosaminoglycans Content	> 120 mg/g	Blyscan Assay

(*) Typical specifications table for Seallagen-MCT Technical Grade. For specification details for your lot number, please refer to the COA provided with your order.

(**) >85% collagen contained with alpha (α_1 , α_2), beta (β) and gamma (γ) bands

(^)>95% FTIR spectra matching the intensity bands corresponding type-I collagen (Riaz et al. 2018)

Applications:

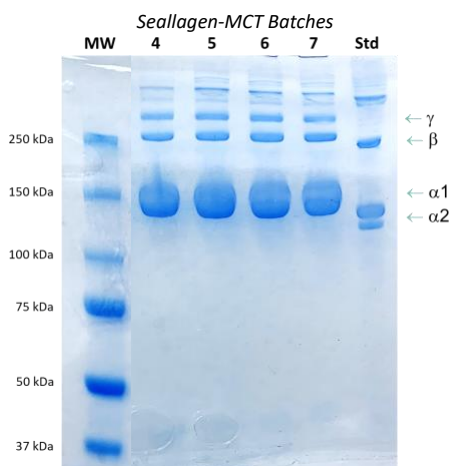
Seallagen-MCT possess a unique connective tissue (Mutable Collagenous Tissue, MCT), composed by collagen fibrils interconnected by glycosaminoglycans, the major components of neoderms, creating the optimal environment for collagen biosynthesis, showing improved biocompatibility, biodegradability and safety. Seallagen-MCT unique physical, chemical and biological properties allow fabrication of stable hydrogels through fibrogenesis. It also constitutes a suitable polymeric matrix for electrospinning, 3D-bioprinting and biocompatible nano-coatings and cell culture. Seallagen-MCT products are best suited for the cultivation of adherent primary cells, stem cells, and cell lines.

Properties

- Non-mammalian, BSE, and disease vector free
- Naturally crosslinked collagen fibrils and glycosaminoglycans
- Cleaner at miRNA levels when compared to mammalian alternatives giving customers a cleaner cell culture with less off-target effects
- Bioresorbable and biocompatible
- Increased surface area : media ratio – allows for improved nutrients and waste exchange, lowering the risk of cell necrosis.
- Translatibility – *in vitro* to *in vivo* applications
- Batch-to-batch consistency
- 2D and 3D cell culture

Benefits

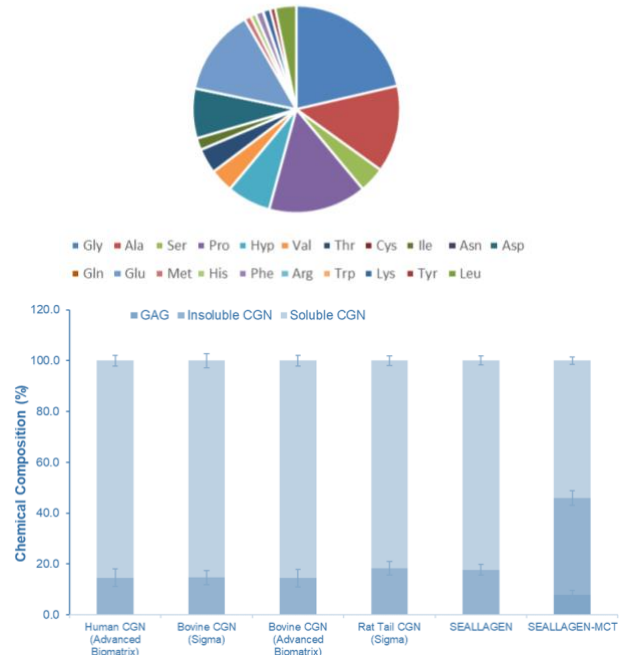
- Improvement of cell adherence
- Natural signals for cell growth, migration and differentiation
- High concentration for flexible use
- Environment provides natural signal for cells
- Proven biocompatibility and biodegradability *in vivo*
- Long shelf life



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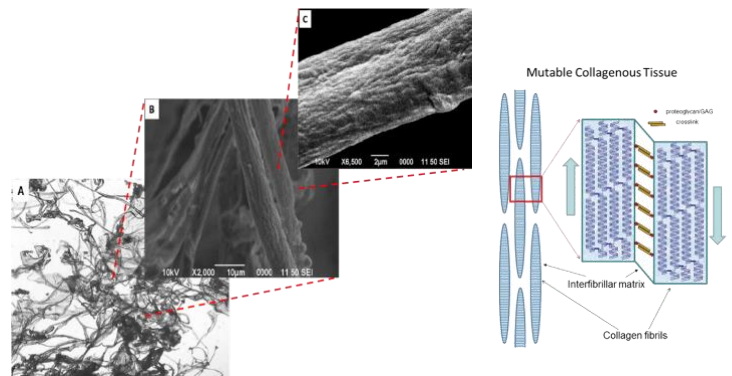
- Seallagen-MCT's electrophoretic pattern is typical of Type-I Collagen, showing an $\alpha(I)_3$ triple helix structure around 150 kDa, together with the bands associated to polymerized collagen (β and γ chains at higher MW).
- Consistency and reproducibility batch-to-batch ensures ME Bio's extracting quality.

Seallagen-MCT Amino Acid Profile



Amino Acid Profile, Collagen, and GAG Assays

- GAG quantification reveals Seallagen-MCT contains significant amounts of GAG when compared to other collagen standards.
- QC analysis reveal similarities between Seallagen-MCT and Type-I Collagen from different animal sources.



Microscopy Imaging

Microscopy confirms the fibrillar macrostructure and surface morphology of Seallagen-MCT collagen.

- Fibrils arranged unidirectionally
- Microfibrils connections between collagen microfibrils and glycosaminoglycans

Seallagen-MCT (Technical Grade Echinoderm MCT Collagen) comes sterile, as lyophilized fibrillar powder or acid solution, and with a long shelf-life

Seallagen-MCT (Lyophilized Powder)

- Prior to reconstitution store at -20°C.
- After reconstitution store at 2 to 8°C.
- Avoid freezing.
- Storage in frost-free freezers is not recommended.
- Avoid repeated freezing and thawing as this may denature the protein.

Seallagen-MCT (Acid Solution 3 mg/ml)

- Storage at 2 to 8°C.
- Storage in frost-free freezers is not recommended. This product should be stored undiluted.
- Avoid repeated freezing and thawing as this may denature the protein.
- Should this product contain a precipitate we recommend microcentrifugation before use.

Third-Party Testing



Marine Essence Biosciences Corporation of USA (ME Bio) is a high-tech company specializing in research and development of marine biotechnology. Through cutting-edge scientific innovations, ME-Bio harvests from unaltered marine ecosystems providing more advanced, safer and higher quality biotech products.

