

Helicoll®

An Ideal Tissue Regenerative Skin Substitute Scaffold



Advanced Tissue Regenerative Membrane For Skin Burns, Wounds And Ulcers

Helicoll®

Encoll Corp.
Manufacturing/Technology

Description of Helicoll:

Helicoll is a bio-engineered skin substitute product made of high-purity Type-I collagen (>97% pure). It is designed to accelerate tissue regeneration, repair, and heal wounds caused by burns, trauma, diabetes, or other chronic conditions such as bedsores or venous ulcers. One of the added advantages is its longer shelf life of up to 3 years under ambient room temperature conditions.

To learn more about Helicoll and for more detailed info, visit www.Helicoll.com

Differentiating factors of Helicoll from other products:

- Un-crosslinked Type-I collagen in its native form is considered the ideal biomaterial for any biological interaction in the context of wound care.
- Clinical usage of a collagen product that is cross-linked intentionally or unintentionally leads to loss of its bioactivity resulting in delayed healing.
- Helicoll stands out as the sole product made of un-crosslinked, pure Type-I collagen (>97% purity) and holds US patents.
- The un-crosslinked collagen present in Helicoll plays a vital role in minimizing local glycosylation, thereby enhancing the healing of Diabetic Ulcers.
- Helicoll promotes the attachment of cells and growth factors, facilitating accelerated tissue remodeling.
- No other comparable product has demonstrated cell and blood capillary invasion within just 4 to 5 days of application.
- Wounds healed using Helicoll exhibit excellent aesthetic results, retaining native pigmentation, minimizing scarring, and effectively inhibiting keloid formation. Furthermore, Helicoll has proven successful in treating wounds that involve exposed bones and tendons.
- The utilization of Helicoll reduces treatment costs, as its bioactivity reduces the frequency of applications, leading to significant savings in hospital expenses.
- Helicoll application dramatically reduces pain.
- The bioactivity of Type-I collagen is further enhanced through phosphorylation, facilitating cell-signal transduction and promoting faster healing.

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- All intact tissue-derived decellularized membranes, whether allografts or xenografts, contain immunogenic components such as Elastin, which is scientifically believed to be carcinogenic (ref. www.nature.com/articles/s41467-020-18794-x.pdf).
- In comparison to any allograft product, Helicoll eliminates concerns regarding the possibility of HIV and other human viral infections.
- Helicoll does not require any washing to eliminate unwanted preservatives or storage chemicals. Its overall usage is straightforward, as it can be easily applied through surgical suturing and stapling.

USAGE OF HELICOLL FOR DIABETIC FOOT ULCERS

Etiology of Diabetic Ulcers:

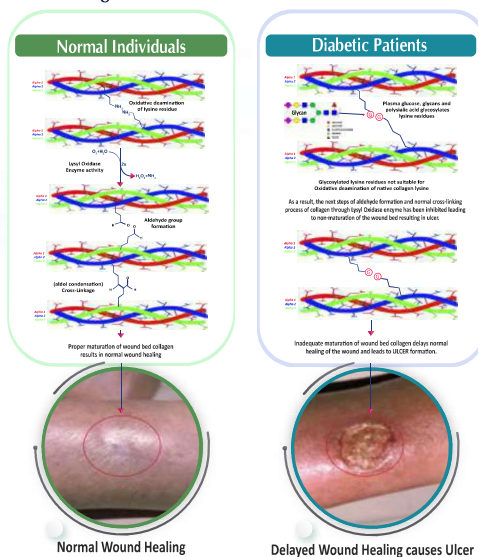
- High levels of blood glucose contribute to the slow healing of DFU.
- Elevated blood glucose levels result in collagen glycosylation.
- Glycosylation refers to the covalent addition of excess blood glucose to collagen.

Impact of Glycosylation:

- Glycosylation prevents the normal collagen maturation of healing wounds.
- Glycosylation inhibits lysyl oxidase that matures collagen to heal the wound.
- This is the reason why the diabetic patient's foot ulcer does not heal normally.

Helicoll's NANOTECHNOLOGY could help heal DFU faster!

Collagen Maturation in Normal vs. Diabetics



How an innovative, patented, Type-I collagen helps:

- Helicoll, an uncross-linked biocompatible collagen, exhibits a unique ability when applied tightly over the wound, where it osmotically absorbs glucose.
- This glucose-absorbing property of Helicoll collagen reduces the glycosylation process of collagen in the wound bed.
- As a result, the collagen in the wound bed can undergo normal maturation, facilitating faster healing of diabetic wounds.
- This scientific explanation validates the successful use of HELICOLL in effectively treating non-healing DIABETIC FOOT ULCERS.

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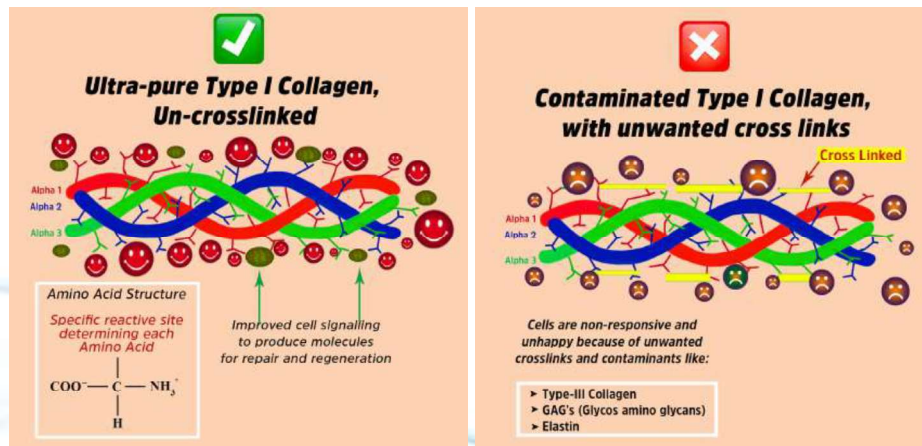


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How Helicoll acts as a tissue regenerative scaffold? (Compared to other products)



Significance of a tissue regenerative scaffold:

- Provides structural support and shape within the wound bed
- Provides a place for cell attachment and growth
- Extremely biodegradable and biocompatible

Problems to be managed with other types of collagen products

These products are not truly biocompatible due to the presence of immunogenic molecules such as Type-III collagen, Glycosaminoglycans, and Elastin. Consequently, these molecules necessitate cross-linking to reduce their immunogenicity.

Such cross-linked products potentially lose the native surface chemistry of the type-I collagen (see figure above)

To resolve:

Helicoll is biocompatible, non-immunogenic due to its high purity type-I collagen (free of contaminants) that is non-cross linked. This retains the native surface chemistry of the type-I collagen to interact with the underlying cells.

Additional phosphorylation of such pure type-I collagen triggers the stem-cells through cell signaling pathways to enhance the tissue repair and regenerative process

Conclusion: Helicoll represents an ideal tissue regenerative scaffold that encompasses essential characteristics of biocompatibility, non-immunogenicity, and bioactivity. It fulfills critical clinical requirements for tissue regeneration and remodeling, making it an excellent choice in the field.

Helicoll's efficacy: Brings new blood capillaries within 4 to 5 days!