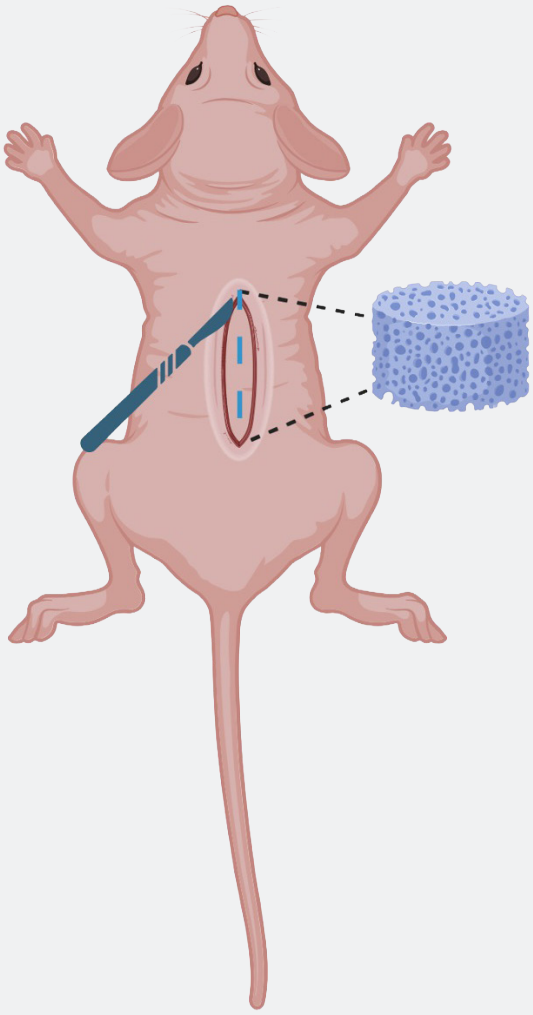
HELIOGEN®
FIBRILLAR COLLAGEN MATRIX

ACUTE SURGICAL WOUND ANIMAL STUDY

HELIOGEN® vs. Type I Bovine Collagen Particulate*



Objective: Evaluate the host response to scaffold products[1,2]

Methods: Subcutaneous implant of scaffold products in athymic nude mice** with acute wounds

Test Articles: Scaffold Products

HELIOGEN

- Type I and III bovine dermis particulate
- n=8 to 10 animals per time point^

Type I Bovine Collagen

- Bovine dermis particulate
- n=6 to 7 animals per time point^

Timepoints Evaluated:

- 1 week and 4 weeks
- Tissue sample section processed and evaluated microscopically

* Not hydrolyzed collagen.
** Athymic nude mice lack T cells. Therefore, they do not reject foreign tissue. This model eliminates confounding results from a xenogenic response.
^ One site per animal.

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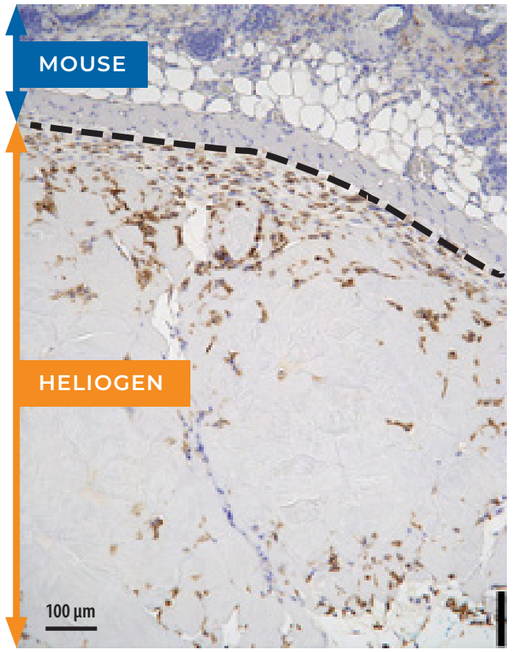
Results: Week 1 Post-Implantation[1]

HELIOGEN is **well-tolerated** as evident by **fewer inflammatory macrophages** infiltrating into the implant



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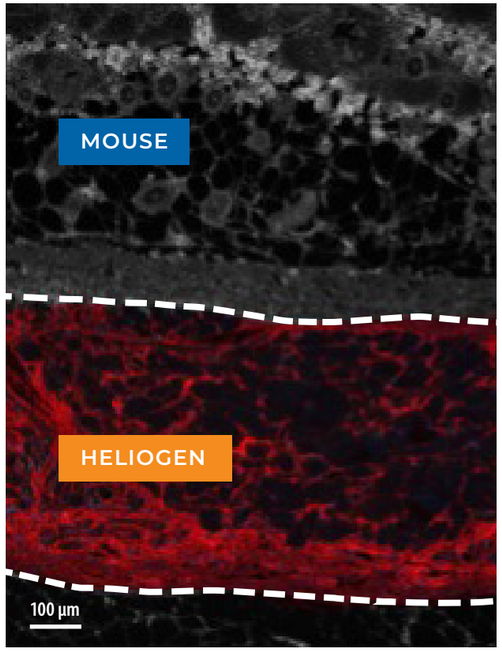
Type I Bovine Collagen Particulate

Results: Week 4 Post-Implantation[2]

New collagen was deposited into the **HELIOGEN** implant site because the scaffold was **well-tolerated and supported cellular ingrowth.**

Type I Bovine Collagen Particulate was largely degraded; therefore, minimal collagen deposition was apparent within the implant.



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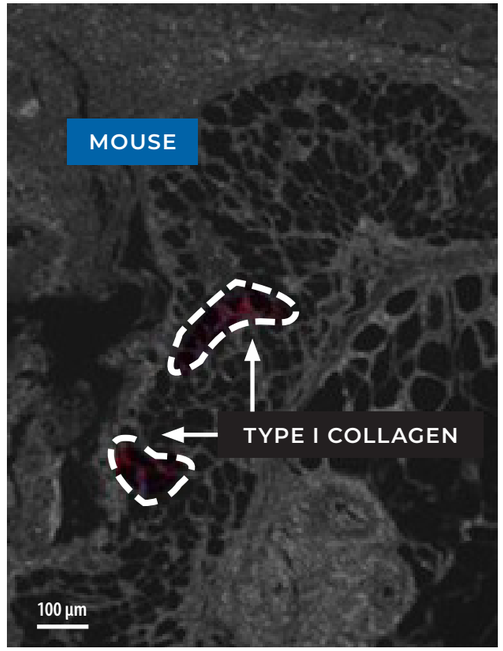
Existing subcutaneous mouse collagen has been subtracted to highlight new collagen formation into the remaining implant.



Type I Bovine Collagen Particulate

Staining Guide

Macrophages (brown staining) are inflammatory cells responsible for clearing damaged tissue and foreign objects[3]

All nucleated cells (blue/purple staining)

Images are representative of observed response across all animals. Additional details are available upon request.

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Conclusion[1,2]

Week 1: HELIOGEN exhibited a lesser inflammatory response than the Type I Bovine Collagen Particulate.

Week 4: HELIOGEN persisted and exhibited scaffold properties like supporting new collagen production. The Type I Bovine Collagen Particulate was degraded due to early inflammation.

Overall, HELIOGEN collagen matrix provided an optimal scaffold in an acute surgical wound.†

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FIBRILLAR COLLAGEN MATRIX

Product	Product Compatibility With Host‡	Product Persistence Post-Implantation
HELIOGEN	++++	++++
Type I Bovine Collagen Particulate	++	++

+Ratings are based upon histopathological analysis. Higher ratings (+) are indicative of improved performance.

SCAN TO WATCH VIDEO PRESENTATION

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To find out more about MIMEDX products:

Please Call: 866.477.4219 Email: customerservice@mimedx.com

†Results were demonstrated in animal only. Correlation to clinical results in humans is unknown.
‡Biocompatibility was determined by the macrophage response because nude mice lack and adaptive immune system.

1. MIMEDX Internal Report. MM-RD-00183, Immunofluorescence and Immunohistochemical Analysis of Xenograft ECM Particulates in a Mouse Subcutaneous Implant Model. 2. MIMEDX Internal Report. MM-RD-00178, Non-GLP Evaluation of Xenograft Scaffolds for Cellular Response in a Mouse Subcutaneous Implant Model. 3. Aitcheson SM, Frentiu FD, Hurn SE, Edwards K, Murray RZ. Skin Wound Healing: Normal Macrophage Function and Macrophage Dysfunction in Diabetic Wounds. Molecules. 2021;26(16):4917.

Note: Mouse and stain guide images created using BioRender.

Refer to Instructions for Use for a complete description of all applicable indications, warnings, precautions and contraindications.

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