Advanced Medical Solutions Ltd

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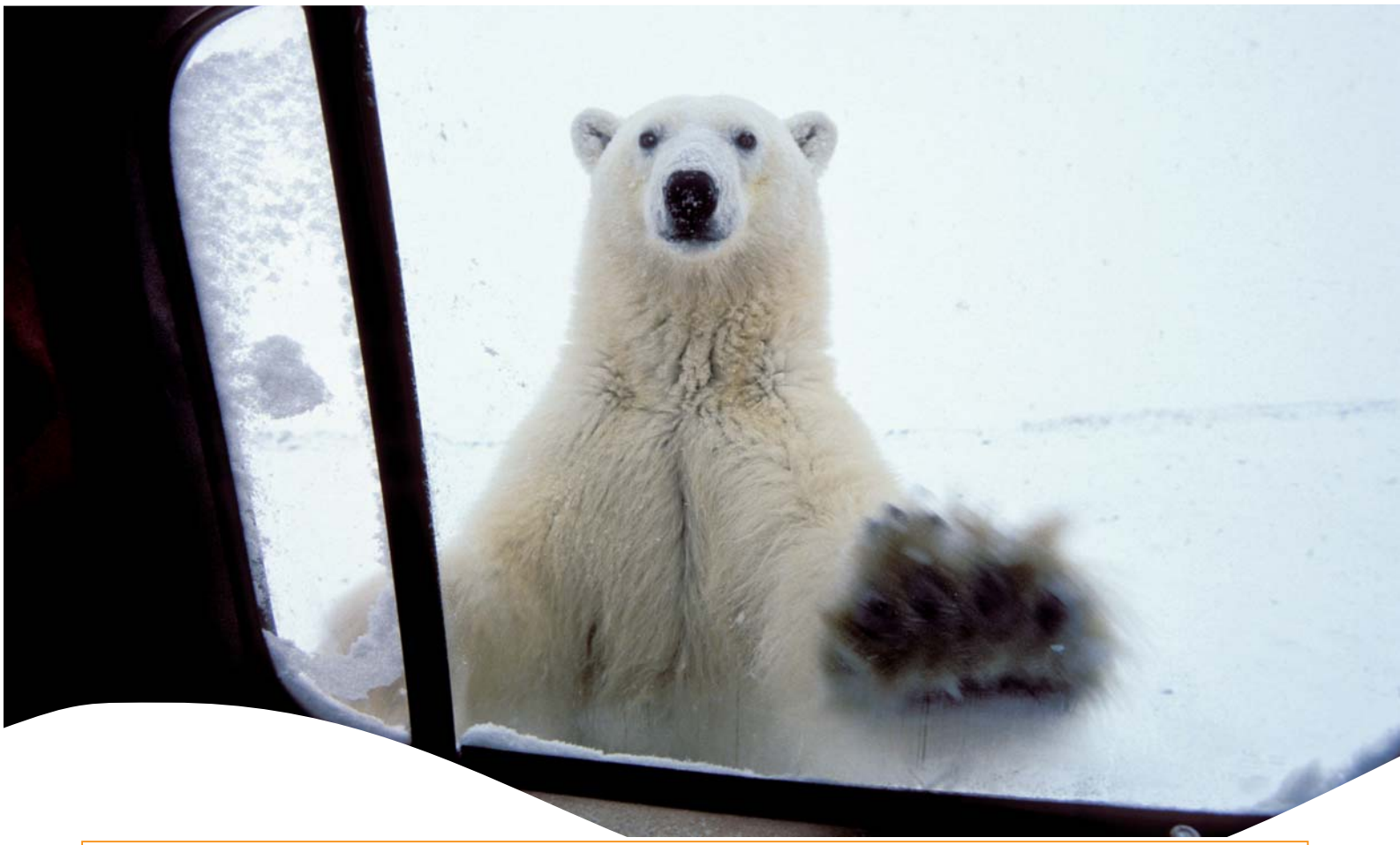


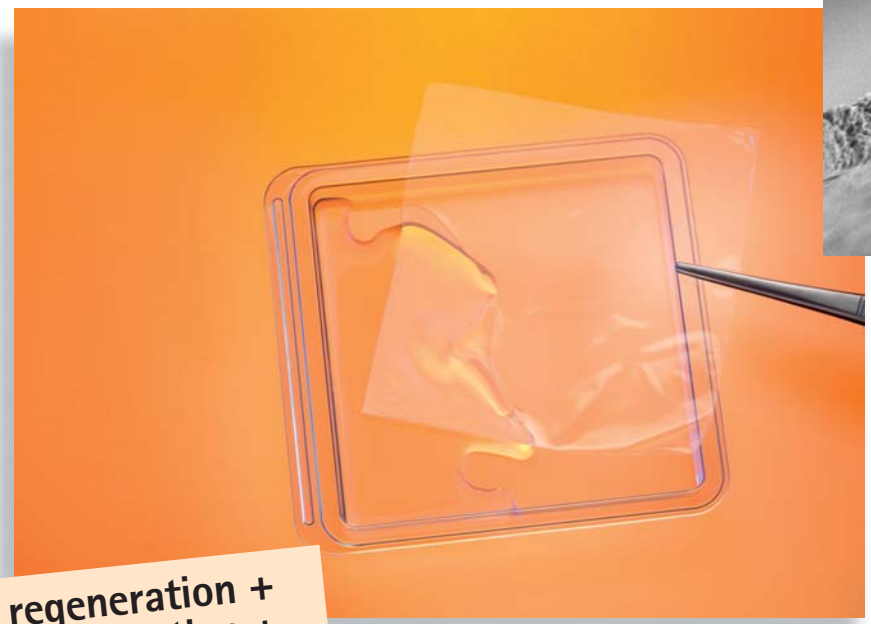
Sometimes a small barrier makes a big difference

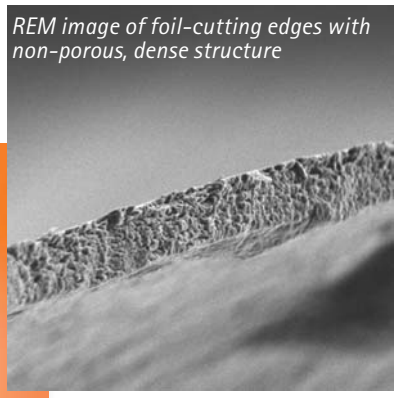
GENTA-FOIL *resorb*®
for orthopaedics and trauma surgery

RESORBA®

REPAIR AND REGENERATE

Highly effective: GENTA-FOIL *resorb*®





REM image of foil-cutting edges with non-porous, dense structure

1 cm^2 of foil contains:
5.6 mg collagen of an equine origin

4 mg gentamicin sulphate, corresponding to
2.20 -2.86 mg gentamicin base

REF	Size	Package contents
GF 25	2.5 x 2.5 cm	1 foil / PU
GF 255	2.5 x 5 cm	1 foil / PU
GF 1010	10 x 10 cm	1 foil / PU

Tissue regeneration + Implant integration + Antibiotic protection: In this combination, the medical Product GENTA-FOIL *resorb*® is highly effective

GENTA-FOIL *resorb*® is a transparent collagen foil used as an alternative implant coating. Due to the absorbability of the equine collagen, the foil can remain in situ and a further operation to remove it is not required. At the same time, GENTA-FOIL *resorb*® causes no defence reaction or inflammations. As an additional protection, the foil contains the aminoglycoside antibiotic gentamicin.

Following the successful introduction of the GENTA-FOIL *resorb*® into hand surgery in 2010, we have now introduced a new size for use in orthopaedics and trauma surgery (10cm x 10cm).

GENTA-FOIL *resorb*® helps to provide the ideal conditions for success following surgery:

- Absorbable (with a temporary barrier function)
- Antibiotic protection
- Biocompatible
- Naturally cross-linked (without chemical additives)
- Easily malleable after dampening briefly
- Flexible, stable structure and form
- Does not cause any secretion reaction
- Sticks remarkably well to foreign surfaces

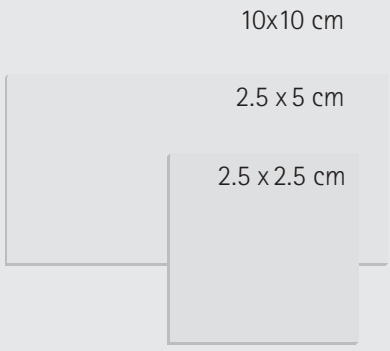
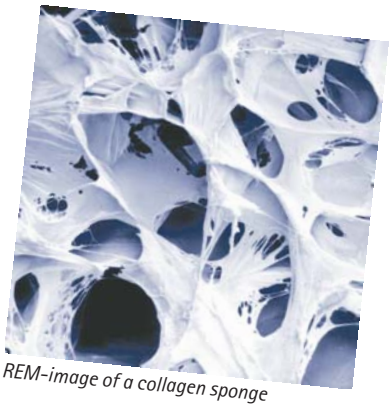


Figure in original size

RESORBA®

Improving surgical results



REM-image of a collagen sponge

GENTA-FOIL *resorb*® a collagen biomatrix

Type I collagen is present within a living organism, primarily in the form of fibres in extracellular tissue and other mesenchymal tissues.
The behaviour within the process of proliferation and the migration of human skin cells on these collagen substrate, is of great interest, since the cells are embedded into the collagenous extracellular matrix. (Schor, 1980) As the wound heals, collagen is processed into a wound dressing or an absorbable implant and does not hinder the growth of cells, which is crucial to phases II and III of wound healing.
It is possible that cells (e.g. fibroblast cells) move along the collagen fibres and are able to diffuse through them.
Collagen is thus a type of "conductor rail for cells experiencing growth".
The colonization of collagenous biomaterial promoted by this process leads to an effective integration of implants (e.g. osteosynthesis or soft tissue augmentation).
As a main component of the extracellular matrix, collagen possesses an enormous natural potential as a scaffold for cells that are growing during wound healing and tissue regeneration phase. It has been known since the 80s that epidermis cells bind selectively to collagen substrates and use them as "conductor rail" to migrate to the wound surface.
As part of this process, the migrating epidermis produces basal membrane collagen, which also requires migration.
(Oehmichen,1990)
An analogous behaviour is shown by human bone stem cells and osteoblasts.
They adhere to the three-dimensional scaffolding made of type I collagen, to grow, and to become differentiated.
(Yang, Bhatna- gar, Li, & Oreffo, 2004)
Infected wounds can cause significant complications and need to be managed effectively.
For example, matrix metalloproteases (MMPs) occur in high concentration levels, which can undermine the extracellular matrix and growth factors crucial to implant integration.
Furthermore, MMPs promote inflammation reactions and reduce cell response within the wound.
These very MMPs will be bound by collagen, therefore promoting wound healing.

"Race for the Surface"

Infections associated with biomaterials represent one of the greatest clinical problems of our time.
Unfortunately, microorganisms are often introduced onto an implant surface during a surgical procedure, and begin the "race for the surface" before tissue integration can take place.
Collagen represents a biomimetic surface of the implant, and can improve integration into the body after implantation, thereby forming an initial protective layer for the implant surface.
GENTA-FOIL *resorb*® is also protected by the aminoglycoside antibiotic gentamicin.

Literature / sources

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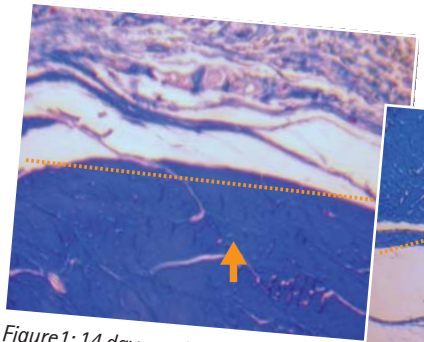

Figure 1: 14 days post-op, typical cell image in the border area of the tendon (arrow)

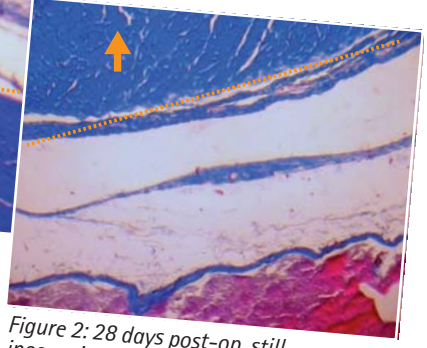

Figure 2: 28 days post-op, still inconspicuous conditions around the tendon (arrow)

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