

SMARTBRANE

Resorbable Pericardium Membrane

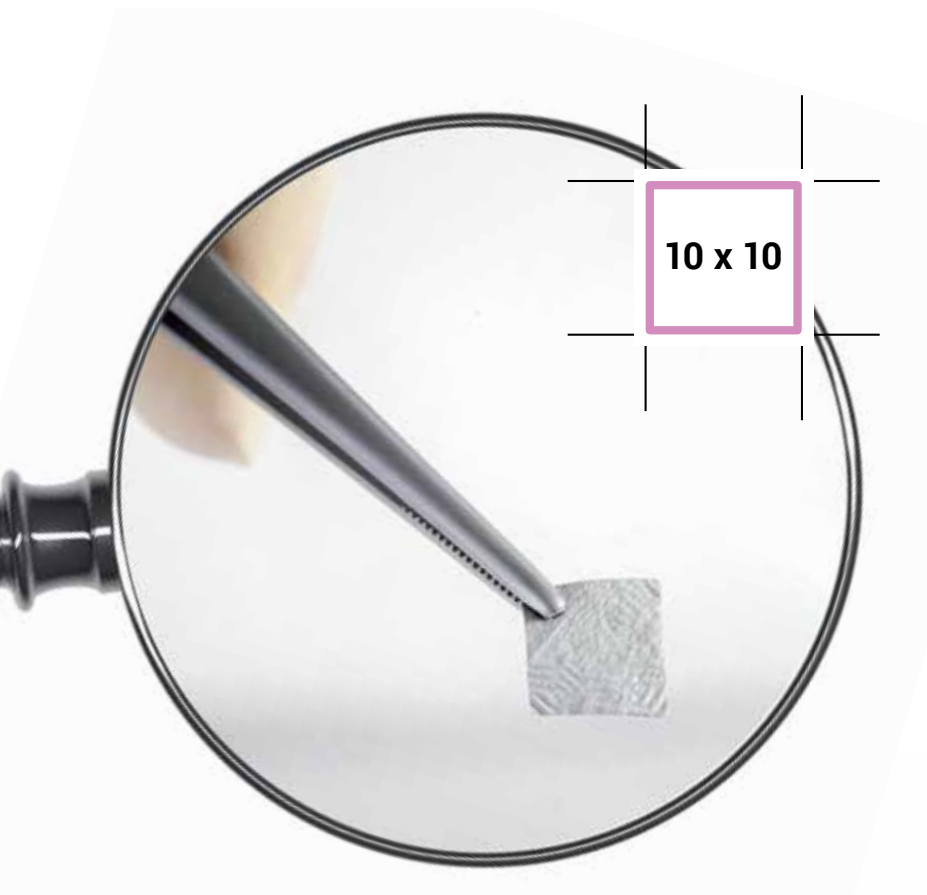


MORE ECONOMIC

10 X 10 MM – BIG ENOUGH TO COVER SMALL DEFECTS

SMARTBRANE is a resorbable collagen membrane made from porcine pericardium. Thus, it features all benefits of a modern native collagen membrane.

In addition to the standard membrane sizes, it is available in a mini format of 10 x 10 mm. This offers a more economic membrane solution especially for regeneration of small bone defects optimizing your cost-benefit structure.



NEW!
THE SMALLEST MEMBRANE
10 x 10 mm

NEW!



10 x 10 mm



15 x 20 mm



20 x 30 mm



30 x 40 mm

SIMPLE

OPTIMIZED HANDLING PROPERTIES ENSURING STRAIGHT-FORWARD APPLICATION

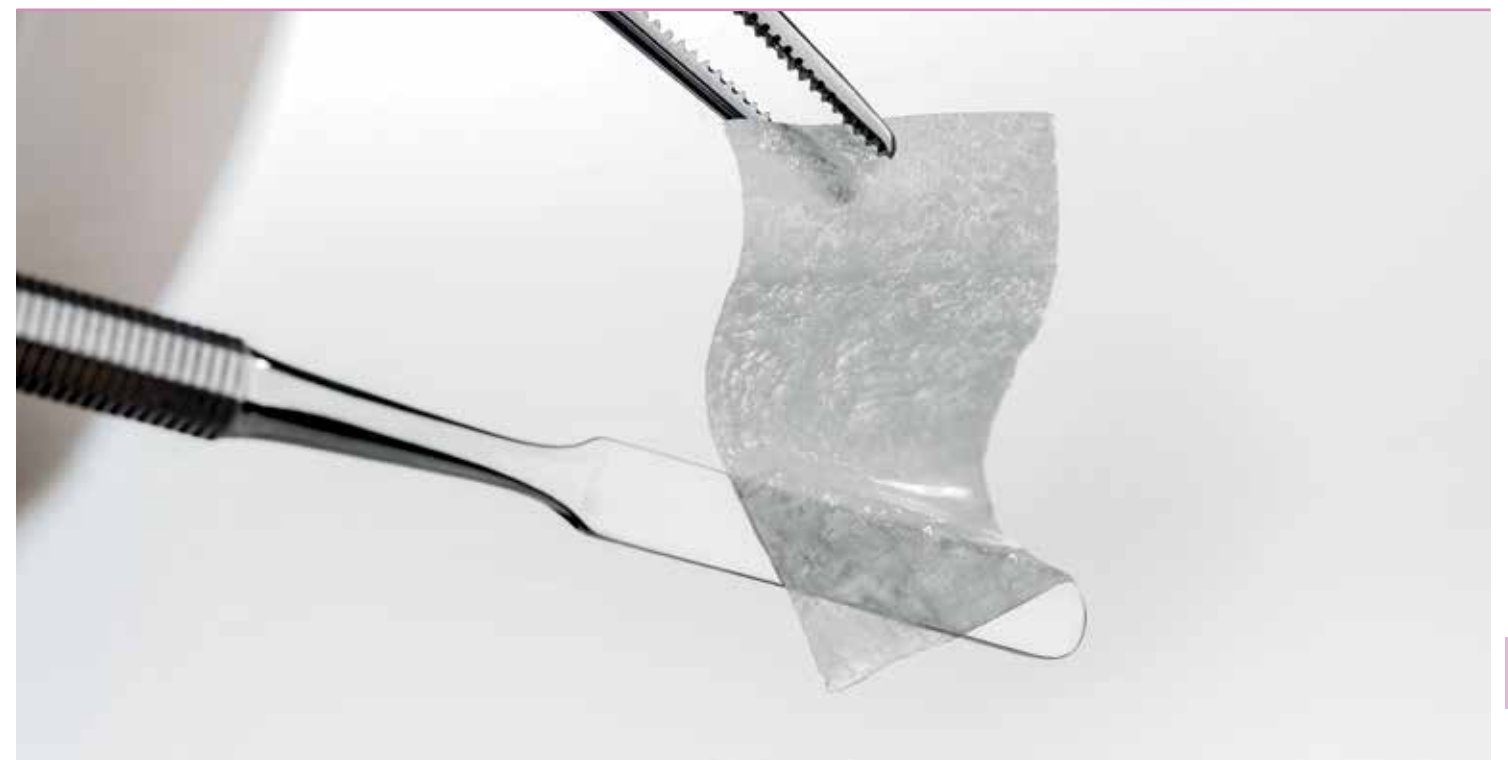
The supercritical carbon dioxide (scCO₂) cleaning process gently removes unwanted materials (e.g., cells, lipids) while preserving the natural collagen matrix and optimizing the natural cross-linking of the collagen fibers^{1,2}

As a result, SMARTBRANE is characterized by optimal material stability as the biomechanical characteristics of porcine pericardium tissue are preserved.³

SMARTBRANE ...

- ADEQUATE TENSILE STRENGTH;
- ADAPTABLE TO BONY SURFACES WITHOUT STICKING TO THE GRAFT OR INSTRUMENT;
- LESS THAN 0.4 MM THIN FOR FACILITATED AUGMENTATION AND WOUND CLOSURE.

SMARTBRANE rehydrated: excellent adaptation to surfaces without sticking to graft or instrument.



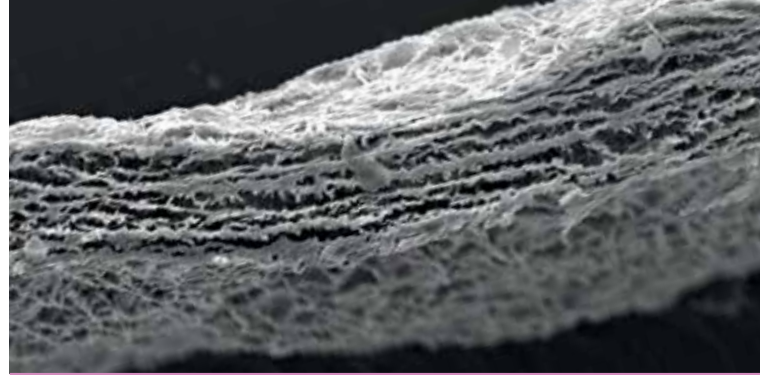
RELIABLE

NATURAL COLLAGEN MATRIX PRESERVED BY scCO₂ CLEANING TECHNOLOGY FOR ENHANCED GRAFT PERFORMANCE

SMARTBRANE is made from porcine pericardium thus presenting optimal matrix composition and a naturally dense 3D-network collagen structure optimally preserved after scCO₂ purification.

The preserved natural collagen matrix plays an important role in blood clotting and promotes cell attachment.⁵

The membrane has a resorption time of 8–12 weeks providing adequate barrier function for usage in standard GBR cases.⁶



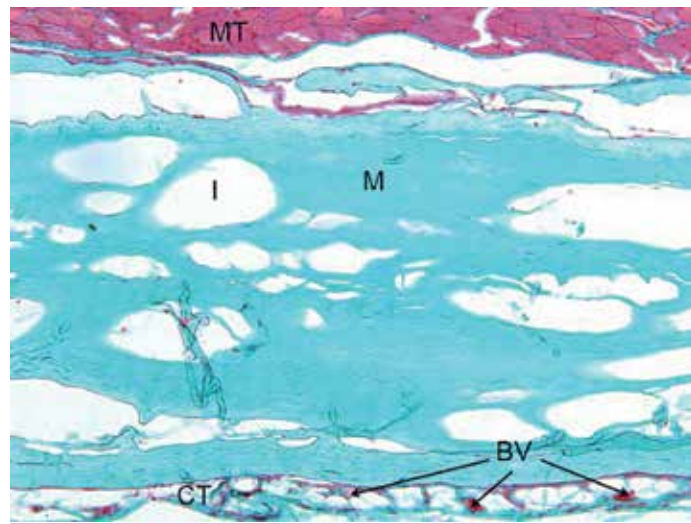
SMARTBRANE rehydrated: excellent adaptation to surfaces without sticking to graft or instrument.

PURE

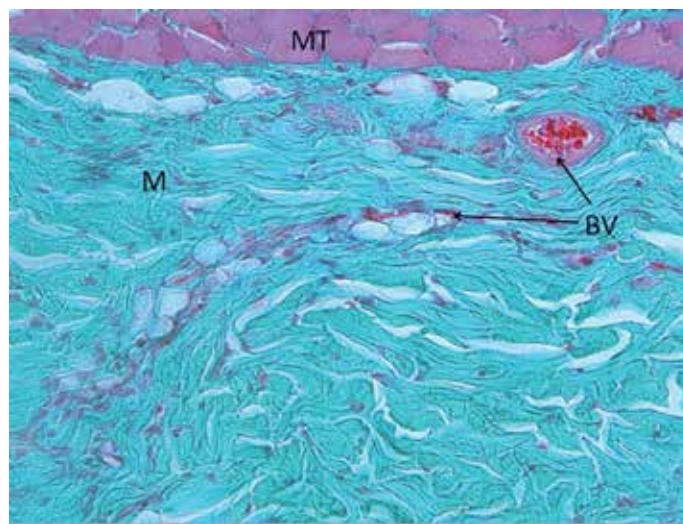
EXCELLENT BIOCOMPATIBILITY FOR IMPROVED WOUND HEALING

SMARTBRANE is manufactured using an innovative and highly effective cleaning technology based on supercritical carbon dioxide (scCO₂). This process results in a high purity and creates a biocompatible base for immediate new bone ingrowth.^{1,2} It provides highest possible biocompatibility characteristics due to its porcine origin and the scCO₂ cleaning process.

HISTOLOGICAL EXAMINATION IN VIVO⁴



One week after subcutaneous implantation in a rat muscle: SMARTBRANE (M) is already connected to the muscular tissue (MT), no signs of inflammatory reactions.



Two weeks after implantation: the first blood vessels (BV) are sprouting into SMARTBRANE (M), no signs of inflammatory reactions.

TECHNOLOGY

scCO₂ CLEANING PROCESS AS BASIS FOR OPTIMAL MATRIX PROPERTIES AND MAXIMAL GRAFT SAFETY



SUPERCritical CARBON DIOXIDE (scCO₂) PROCESSING

- Carbon dioxide is in its supercritical state when both the temperature and pressure equal or exceed the critical point of 31°C and 73 atm.
- In this supercritical state, CO₂ has both gas-like and liquid-like qualities.
- By its effective tissue perfusion and removing capabilities of unwanted substances it provides ideal conditions for cleaning and sterilizing tissues.^{1,2}
- Additionally, scCO₂ is known to be highly efficient against all kinds of pathogens.⁷



CHEMICAL TREATMENT

- Various chemical treatment steps are applied to provide a pure membrane matrix by inactivating and removing residual non-collagenous proteins and enzymes. This results in a further increased safety level for pathogen inactivation.⁸



FREEZE-DRYING

- Freeze-drying allows gentle preservation, retaining the original 3D structure of the native tissue.
- After freeze-drying, products can be stored at room temperature and generally have a longer shelf life.



γ-STERILIZATION

- The combination of the scCO₂ cleaning process and terminal gamma-sterilization provides highest possible viral and bacterial inactivation and results in a sterile (SAL>10⁻⁶) and highly biocompatible membrane.^{1,9}

AUGMENTATION OF A DEHISCENCE-TYPE DEFECT AROUND DENTAL IMPLANT

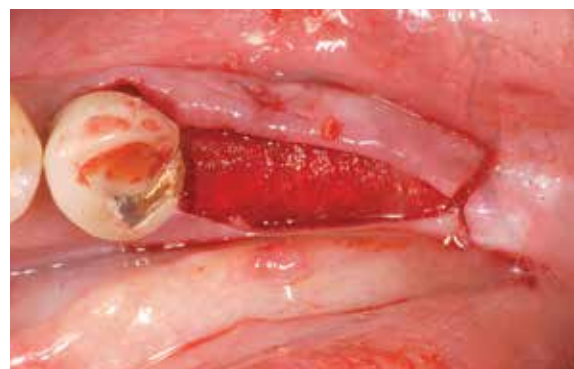
CLINICAL CASE PROVIDED BY PROF ???, UNIVERSITY OF ???, COUNTRY



SURGERY
Dehiscence defect around bone level implant.



Augmentation with xenograft bone.



Coverage of bone graft material with SMARTBRANE – the membrane can easily be positioned and adapts ideally to the defect geometry.



SUTURE REMOVAL
Optimal initial healing pattern: no signs of irritation.

SINUS ELEVATION VIA SMALL FENESTRATION

CLINICAL CASE PROVIDED BY DR. H. JAMBREC, GENEVA (SWITZERLAND)



1a. ~4mm



1a. PRE-OPERATIVE
X-ray showing a bone height of 4mm, which is not enough to place an implant.

1b. SURGERY
After preparing the flap, a small fenestration (size ~8mm) was made to access the sinus.



2a.



2b.

2a. Mixing of THE GRAFT (granules 1-2mm / 3.6 cc) with blood.

2b. Filling of tube with xenograft.



3a.



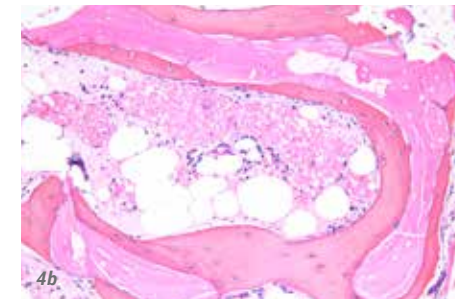
3b.

3a. Filling of sinus cavity.

3b. Fenestration covered with very small pericardium membrane (SMARTBRANE mini, size: 10x10 mm).



4a.



4b.

4a. 6 MONTH POST-OPERATIVE
Bone height of around 14mm was achieved.

4b. HISTOLOGICAL PICTURE:
Higher magnification image showing vital bone completely surrounding the graft material. The bone marrow is well vascularized with sparse lymphocytes in places.*



5a.

5a. 20 MONTH POST-OPERATIVE
Situation 20 months after grafting procedure. Implant seems well integrated and bone height looks stable.

* Histology performed by Prof. T Lombardi, Université de Genève

AVAILABLE PRODUCTS

SMARTBRANE

Resorbable Pericardium Membrane

MEMBRANE SIZE

NEW!	Mini	10 mm x 10 mm
	Small	15 mm x 20 mm
	Medium	20 mm x 30 mm
	Large	30 mm x 40 mm



REFERENCES

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Clinical pictures by courtesy Dr. Kai Fischer (Germany).
 Manufactured by REGEDENT AG, Zollikerstrasse 144, CH - 8008 Zürich

CE0086 Art. 8121.900EN, Version 2015-11-13

