

# TM

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# YOU ARE WHAT WE STAND FOR.

creos<sup>™</sup> was launched in



creos<sup>™</sup> xenoprotect

2016 creos™ xenogain creos<sup>™</sup> xenogain collagen

> 2018 creos<sup>™</sup> mucogain

2021 creos<sup>™</sup> syntoprotect

# 2022

and a manie

creos<sup>™</sup> syntogain creos<sup>™</sup> xenoform

# 2023

creos<sup>™</sup> syntostitch creos<sup>™</sup> xenofill creos<sup>™</sup> screw fixation creos<sup>™</sup> xenofirm

# 2024

creos<sup>™</sup> syntoprotect mesh creos<sup>™</sup> pin fixation

**Creos**<sup>TM</sup>

The trusted regenerative partner for you and your patients

# Indication-based product over

# **Bone grafts**

creos<sup>™</sup> xenogain creos<sup>™</sup> xenogain collagen creos<sup>™</sup> xenoform creos<sup>™</sup> syntogain

# Membranes

creos<sup>™</sup> xenoprotect creos<sup>™</sup> xenofirm creos<sup>™</sup> sytoprotect mesh creos<sup>™</sup> syntoprotect creos<sup>™</sup> syntoprotect titanium reinforce

Collagen matrix creos<sup>™</sup> mucogain

Wound dressings creos<sup>™</sup> xenofill

Sutures creos<sup>™</sup> syntostitch

**Fixation systems** creos<sup>™</sup> pin fixation creos<sup>™</sup> screw fixation

Article overview

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# Indication-based product overview

See article lists (p. commonly used pr	. 24–31) for most		Ridge pre With primary closure	servation Without primary closure	Horizontal ridge augmentation	Vertical ridge augmentation	Peri-implant defect	Sinus augmentation	Periodontal defects	Soft tissue aug- mentation (around teeth or implants)
	creos xenogain*	Xenogenic bone graft substitute	0.25–0.5 g	0.25-0.5 g	0.25-0.5 g	0.5–2 g	0.25-0.5 g	1–2 g	0.25 g	
	creos xenogain collagen	creos xenogain + 10% porcine collagen type I	0.1–0.25 g	0.1–0.5 g	0.25–0.5 g		0.15–0.25 g	0.25-0.5 g	0.1–0.25 g	
Bone grafts	creos xenoform*	Xenogenic bone graft substitute	0.25-0.5 g	0.25-0.5 g	0.25–0.5 g	0.5–2 g	0.25-0.5 g	1–2 g	0.25 g	
	creos syntogain*	Synthetic bone graft	0.5–1 g	0.5–1 g	0.5-1 g	1 g	0.5 g	1 g	0.5 g	
	creos xenoprotect	Resorbable collagen membrane	15 x 20 mm		15 x 20 mm 25 x 30 mm	25 x 30 mm 30 x 40 mm	15 x 20 mm	15 x 20 mm 25 x 30 mm	15 x 20 mm	
	creos xenofirm	Resorbable, firm collagen membrane	15 x 20 mm		15 x 20 mm 20 x 30 mm	20 x 30 mm 30 x 40 mm	15 x 20 mm	15 x 20 mm 20 x 30 mm	15 x 20 mm	
Membranes	creos syntoprotect	Non-resorbable high-density PTFE membrane		12 x 24 mm 12 x 30 mm 25 x 30 mm			12 x 24 mm 12 x 30 mm 25 x 30 mm			
	creos syntoprotect Ti-reinforced	Non-resorbable titanium-reinforced high-density PTFE membrane		Shapes 1 and 2	Shapes depending on defect	Shapes depending on defect	Shapes depending on defect			
Mesh	creos syntoprotect mesh	Reinforced PTFE mesh			Shapes depending on defect	Shapes depending on defect	Shapes depending on defect			
Matrices	creos mucogain	Absorbable collagen matrix								15 x 20 mm 25 x 30 mm
Wound dessings	creos xenofill	Absorbable wound dressing		Plug (fully intact sockets only)						Foam, Tape (for donor site)
Sutures	creos syntostitch	Non-absorbable PTFE suture-monofilament	All sizes	All sizes	All sizes	All sizes	All sizes	All sizes	All sizes	4-0; 5-0
· · · ·	creos screw fixation	Self-drilling titanium fixation screws			All types	All types	Membrane fixation screws; Tenting screws			
Fixation system	creos pin fixation	Absorbable or non-absorbable membrane fixation pins			Magnesium & Titanium	Titanium	Magensium & Titanium	Magensium & Titanium		

Note See Instructions For Use for full prescribing information, including indications, contraindications, warnings and precautions. Volumes and sizes listed are to be used as approximations and may vary depending on the defect/patient.

\*Please consult article lists (p. 24–31) for conversion to volume (cc)

# creos<sup>™</sup> xenogain

# Xenogenic bone graft used for guided bone regeneration and guided tissue regeneration

# Three different methods of application:



# Similar to human bone

# Easy handling

# Solid foundation for dental implant treatment



Made from cancellous bone

# creos<sup>™</sup> xenogain collagen





# Scaffold for successful regeneration

Preserved natural features of bone through optimized manufacturing process.<sup>2</sup>

# Chemical composition

With a calcium phosphate ratio that reflects the composition in human bone and a structure with low crystallinity, the body accepts creos xenogain as a suitable framework for bone formation.<sup>1</sup>

# Particle size

- Homogenous particle size<sup>1</sup>
- Maintains space for bone regeneration<sup>4</sup>

# Preserved nanostructure

Nanostructure preserved thanks to treatment at comparatively low temperature (600°C) and no sinterina.<sup>2</sup>

# Macro and micro-structure

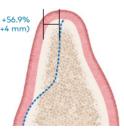
Interconnected macropores allow cells to invade bone grafts and micropores contribute to capillary liquid uptake (hydrophilicity).<sup>10,11</sup>

# Solid foundation for implant placement

The graft integrates with the newly formed bone, building a basis for successful implant placement.<sup>4</sup>

# Schematic showing the defect and bone size prior to and after GBR





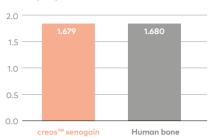
Initial situation before GBR

8 months post-surgery

In a multicenter clinical study involving 46 patients, bone increase after 8 months was 4.0 mm (+56.9 % gain) and 4.7 mm (51.0% gain) at 1 and 3 mm from the top of the crest, respectively.<sup>6</sup>

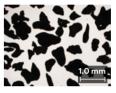
GBR led to robust bone regeneration during the 8 months of healing, enabling successful placement of 91 implants in 43 patients, with an average insertion torque of 37.8 ± 5.1 Ncm.<sup>6</sup>



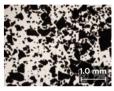


## Calcium phosphate ratio

Photographic micrograph of creos xenoggin and reference product ng the particle size distribution (magnification 20x)

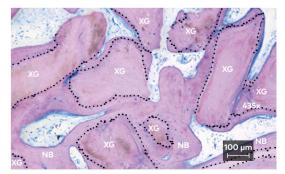


creos<sup>™</sup> xenogair (0.2-1.0 mm)



Reference product (0.25 - 1.0 mm)

Histological cross section of the cellular components: new bone (NB), ne araft (XG). Bone-to-araft-particle contact shown by (



Histological assessment of the trephine cores showed 37.3 % of new bone, 39.1 % of graft material, and 23.6 % of soft tissue (n = 6 cores, 3 patients).<sup>6</sup>



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# creos<sup>™</sup> xenoform

Xenogenic bone graft used for guided bone regeneration and guided tissue regeneration

Cancellous bovine bone sourced from Australia with two application types and two granule sizes

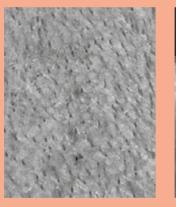


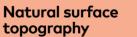




# **Multiporosity** structure

- Made from 100% cancellous bone
- Innovative pulverizing technique allowing multiporous structure
- → Maximizing blood vessel ingrowth





- Low-temperature processing technique
- → Stimulating osteoblast activity
- $\rightarrow$  Favorable for blood vessel access and development<sup>1,2</sup>

world-leading

products

Large pore size

- creos xenoform has a

relatively large pore

size (300-400 µm)

compared to other

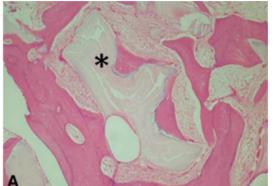


# Octacalcium phosphate crystals

- Found on the surface
- → Enhancing bone regeneration and formation<sup>1</sup>

# Histology: New bone formation of the grafted creos xenoform in the human maxillary sinus cavity<sup>3</sup>

- Sinus graft procedures were conducted in 10 patients
- 6 specimens used for histomorphometric analysis
  - → 23.5% new bone and 15.4% residual graft material 6 months after bone graft surgery
  - → More newly formed bone than residual graft material



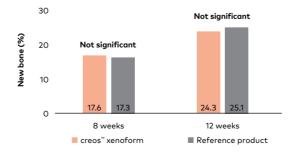


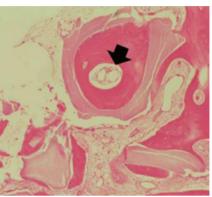
A. Residual graft material (\*) circumscribed by newly formed bone.

lacunge in the bone lamellae

# High percentage of newly regenerated bone

- Patient biopsies show 23.5±0.1% new bone vs 15.4±0.06 residual bone graft 6-8 months post sinus lift.<sup>3</sup>
- In an in-vivo model to evaluate the bone healing effect of biomaterials, the percentage of the newly formed bone with creos xenoform and the reference product were comparable (differences were statistically non-significant). No infections or complications observed after surgery.<sup>1</sup>





B. Ingrowth of microvessels in the newly formed bone (arrow) with

# Long-term success in clinical setting

In the last 10+ years, creos xenoform has been used by dental surgeons around the world and in challenging clinical.



Image courtesy of Myung Ho Lee, DDS, Republic of Korea



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# creos<sup>™</sup> syntogain

# Non-animal-based bone graft substitute for efficient regeneration

# Unique composition of the material<sup>1,2,3</sup>

- 80% of calcium-deficient hydroxyapatite (CDHA) and 20% of BTCP (beta-tricalcium phosphate)
- It's biomimetic: it mimics human bone that is also made of CDHA<sup>1,2,3</sup>

# Microscopic surface made of nanocrystals<sup>1,4</sup>

- High specific surface area<sup>1,5,6</sup>: helps cells attach for new bone generation<sup>7</sup>
- High microporosity, thus enhancing bone ingrowth<sup>1,8</sup>

# Bone stability<sup>1,10</sup>

 The bone is stable and it maintains the volume of the defect based on clinical case series<sup>9,10</sup>



# And even more:

Granules have unique round shape<sup>1,10</sup>

- Makes it easy to apply in situ<sup>11</sup>
- Avoids stacking effect<sup>1</sup>

# High hydrophilicity<sup>12</sup>

 Allows for easy hydration and granule handling<sup>12</sup>

# Non-sintered

 Microporosity and osteoconductivity are not reduced<sup>13,14</sup> Advanced manufacturing process<sup>1</sup>

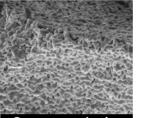
creos syntogain is the latest generation of synthetic bone graft. Its manufacturing process in an aqueous environment and at low temperature enables a bone graft with a unique composition, round granule shapes, a high surface area and a nano-/microporosity similar to natural bone.

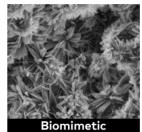
# 1. Unique composition<sup>1,2,3</sup>

- 80% CDHA (carbonated calcium deficient hydroxyapatite)
- 20% B-tricalcium phosphate.

creos syntogain CDHA crystallinity resembles that of human bone.<sup>1,2,3</sup>

The closer a material resembles human bone, the better it is for bone formation.<sup>15</sup>





Current synthetics

Iraditional calcium phosphate (HA / B-TCP) synthetics High-temperature manufacturing process: passivates materials and reduces the potential of the host to interact with it.

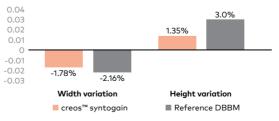
# creos syntogain biomimetic calcium phosphate (CDHA / B-TCP) Low-temperature manufacturing process: hydroxyapatite crystals grow slowly to mimic the structure and composition of human bone.

# Clinical outcomes<sup>17</sup>

In one of the largest randomized clinical trials performed in dental bone regeneration with 102 patients in need of a bone augmentation, creos syntogain showed non-inferiority with the reference deproteinized bovine bone matrix (DBBM): no statistically significant difference in the vertical and buccolingual dimensional change was observed.

Six months post-grafting, the mean bone change in width and height was respectively -1.78% and 1.35% for creos syntogain (n=42) and -2.16% and 2.99% for the reference DBBM (n=41). The differences between the two materials were not statistically significant.

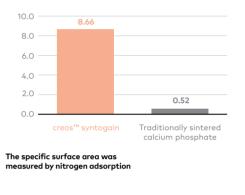
Vertical and horizontal change (%) at 6 months post bone grafting



Synthetic

# 2. High specific surface area<sup>1,5,6</sup>

Thanks to the biomimetic manufacturing process, hydroxyapatite crystals grow on the surface of the granules. This increases the surface area and enables the cells to attach for bone generation.<sup>16</sup>



# N<sub>2</sub> adsorption

The mean implant insertion torque was 36.2 Ncm at sites regenerated with creos syntogain and 35.1 Ncm at sites regenerated with the reference DBBM. For creos syntogain, 71.1% of the implants were placed with an insertion torque above 35 Ncm and 62.8% for the reference DBBM.

_	creos™ syntogain n=45	Reference DBBM	t-test
Insertion Torque (Ncm <sup>-1</sup> )	36.2	35.1	0.676
StDev	12.4	13.6	
ISQ	70.2	70.8	0.770
StDev	12.0	9.8	



# creos<sup>™</sup> xenoprotect

Nobel Biocare's highest selling resorbable collagen membrane

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# Easy handling<sup>1,2</sup>

- Does not stick to instruments
- Repositioning in-situ possible
- Low surface expansion when hydrated
- Both sides can face the defect

# High mechanical strength<sup>2,3,4</sup>

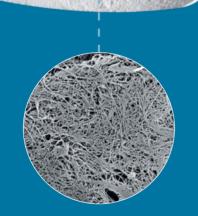
- High suture retention<sup>1,4,9</sup>
- Highly tear-resistant

# Natural collagen membrane

- Non-chemically cross-linked<sup>14</sup>
- Made from porcine collagen

# Facilitates bone gain<sup>2,3,5,6,7,8</sup>

- Tested and approved biocompatibility<sup>7,10</sup>
- Beneficial clinical results<sup>7,10</sup>





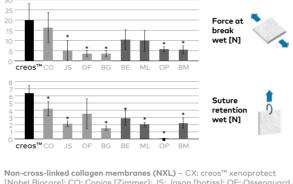
"What I like is that the handling is very easy. The mechanical stability is very high and when it is rehydrated it adapts very well to the underlying bone" Dr. Bastian Wessing, Germany

# High mechanical strength

In an in vitro study aiming to compare the mechanical strength of commonly used native non-chemically cross-linked and chemically cross-linked collagen membranes<sup>4</sup>

- creos xenoprotect demonstrated the highest force at break, wet (21.2 N).
- creos xenoprotect had the highest suture retention when hydrated (6.1 N).



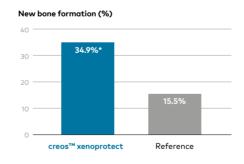


[Nobel Biocare]; CO: Copios [Zimmer]; JS: Jason [botiss]; OF: Osseoguard Flex [3i]: BG: Bio-Gide [Geistlich]

Cross-linked collagen membranes (XL) - BE: BioMend Extend [Zimmer]; ML: Mem-Lok [BioHorizons]; OP: OssixPlus [Datum Dental]; BM: BioMend [Zimmer]:

\*Statistically significant

# Facilitates new bone formation<sup>2,3,5,6,7,8</sup>



In a comparative in vivo study, creos xenoprotect demonstrated significantly higher new bone formation in the central portion of the defect.

This increase in bone formation was associated with significantly increased expression of the growth factor Bmp2, which has a strong role in osteogenesis.<sup>7</sup>

\* As shown in an animal model (rat. subcutaneous)

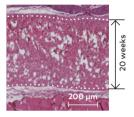
\*Statistically significant

# Provides a physical barrier to contain the bone graft material at the defect site<sup>1,2,3,5,6,11,12,13</sup>

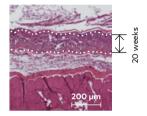
Prevents ingrowth of surrounding tissue for a period of time that is long enough to allow bone regeneration to take place.

In an animal model, after 20 weeks, the thickness of xenoprotect decreased only slightly, whereas the reference membrane showed a thickness loss of around 50%, confirming the higher stability of xenoprotect against biodegradation in vivo.<sup>3</sup>

Representative histological images at 20 weeks implantation in a rat model



creos<sup>™</sup> xenoprotect



Reference membrane

In a randomized controlled clinical trial, 24 patients were treated with creos xenoprotect and 25 with a reference membrane. In the creos xenoprotect group, the defect height reduced at 6-month re-entry by 81%.

In the reference membrane group, the defect height reduced at 6-month re-entry by 62%.<sup>5</sup>

Schematic showing the defect height prior to treatment and 6 months after GBR



creos<sup>™</sup> xenoprotect



creos<sup>™</sup> xenoprotect



Referenc



Reference



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# creos<sup>™</sup> xenofirm

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Resorbable, firm, and long-lasting collagen membrane

# **Creos**<sup>TM</sup> syntoprotect mesh Non-resorbable reinforced PTFE mesh for the

stabilization and support of bone grafts in horizontal and vertical ridge augmentations

# **Optimized flexibility**

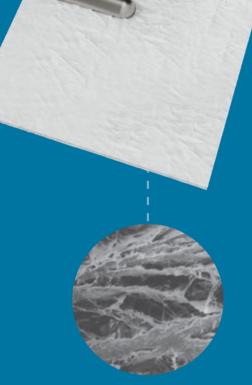
- Stiff enough for easy placement, yet easily drapes over ridge

# Long predictable resorption time

- Resorption time 26–30 weeks

# High tensile strength

- Suture or tack the membrane in place without tearing



# Manufactured from highly purified Type 1 bovine Achilles tendon

Reconsituted fiber construction allows tissue integration while preventing direct passage of epithelial cells.



# Handling options

# Vertical bone augmentation using a reinforced PTFE mesh<sup>1</sup>

A study published by Urban et al. that included 57 patients (65 defects) found that the mean absolute bone gain after vertical bone augmentation with a reinforced PTFE mesh was  $5.2 \pm 2.4$  mm, with a relative gain of  $96.5 \pm 13.9\%$ . Overall, 89.2% of cases showed complete regeneration.





96.5% + 13.9%

a reinforced PTFE mesh

5.2 ± 2.4 mm



# Adaptability of a membrane with porosity of a mesh

Maintains space essential for horizontal and vertical ridge augmentations, but with the benefits of easier trimming and adaptation.

15 shapes adapted to treat different indications.

# Unique macroporous design

Direct contact between bone graft and periosteum allows naturally occurring revascularization and infiltration of cells into the bone graft.





"The creos PTFE mesh allows the vascularization you get from a mesh, but with the softness of a membrane that remains kind to soft tissues. With the mesh, and the bone quality I see at seven months, I am able to shorten time to implants by about two months."

Istvan Urban DMD, MD, PhD



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# creos<sup>™</sup> syntoprotect

Non-resorbable dense PTFE membrane for extraction socket management, ridge augmentations, and grafting of large defects

# **Purposely leave the** membrane exposed

Preserves soft tissue architecture and keratinized mucosa

# Non-resorbable

Will not resorb prematurely - you dictate healing time

# syntoprotect PTFE membrane

# 100% dense (non-expanded) PTFE

Impervious to bacteria – pore size less than 0.3 µm

# Soft tissue attaches, but doesn't grow through the membrane

Exposed membrane allows for non-surgical removal; no anesthesia required





# **Delicate, lightweight framework**

Easy to trim and compliant with the overlying soft tissues

# Less is more

Less titanium bulk allows for greater versatility in shaping and placement, providing additional stability in large, non-spacemaking osseous defects

# syntoprotect Ti-reinforced **PTFE membrane**

# Handling options

Broad portfolio with 15 shapes in two thicknesses

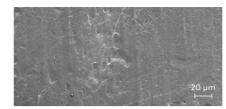
# Traditional frame design

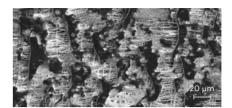
Incorporating delicate and strategically-placed titanium "struts" with more than 25 years of clinical history and successful use in GBR

# Unique properties of dense PTFE membranes

# Dense PTFE

# Expanded PTFE

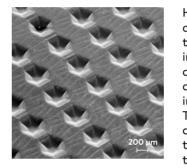




SEM image courtesy of Schüpbach Ltd, Switzerland.

SEM image courtesy of Schüpbach Ltd, Switzerland.

# Designed to aid in membrane stabilization



Hexagonal surface dimples provide a textured surface that increases the area available for cellular attachment without increasing porosity. The textured surface is designed to help stabilize the membrane and the soft tissue flap.

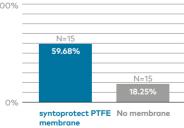
SEM image courtesy of Schüpbach Ltd, Switzerland

# **Clinical evidence**

# Efficacy

Bone loss 1-year post-extraction<sup>1</sup> days post-extraction<sup>2</sup> N=10 0.30 m 0.25 m Vertical Horizontal

hone loss



Vertical bone loss measured at crest. Horizontal measured from stent to buccal plate.

Measured as reduction of the occlusal distance between buccal and lingual gingival margins

# Predictability

bone loss

In two separate studies treating a total of 696 extraction sites using dense PTFE membranes in an exposed technique, there were no reported infections.<sup>4,5</sup>

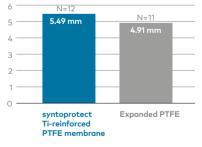
Dense PTFE was designed to withstand exposure in the oral environment, which represents an improvement to earlier versions of expanded PTFE in applications such as ridge preservation where deliberate membrane exposure offers several advantages.



Although PTFE is inherently a non-stick material, cells attach to the outside of the dense PTFE membranes. Cellular adhesion is important to create a seal around the edges of exposed dense PTFE membranes or to support primary closure in larger graft applications.

# Soft tissue regeneration 90

# Vertical ridge augmentation around implants<sup>3</sup>



Mean vertical bone regeneration

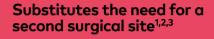


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# creos<sup>™</sup> mucogain

Collagen matrix designed to promote soft tissue regeneration

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# Patented manufacturing method

- Open interconnecting porous structure.
- Designed to promote soft tissue regeneration through the migration of cells and blood vessels into the matrix.<sup>4,5,6</sup>

# Variety of choices

- A choice of different sizes and thicknesses.

# **Excellent** handling

- Easy to use<sup>7</sup>
- High suture retention and stress resistance<sup>7</sup>
- Memory effect after hydration and cycling loading in vitro<sup>4</sup>
- Trim to precisely fit surgical site<sup>7</sup>

# **Clinically effective**

- Shown to promote soft tissue health and maintain adequate soft tissue thickness in a clinical study.<sup>23,24,25,26</sup>





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"It felt like an autogenous tissue graft and the mechanical stability is amazing" Dr. Miguel González Menéndez, Spair

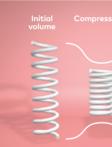
# Use straight out of the box

creos mucogain is intended to be used for soft tissue augmentation indications in the oral cavity around teeth or implants:

- Guided tissue regeneration (GTR) procedures in recession defects for root coverage.
- Localized gingival augmentation to increase keratinized tissue around teeth and implants.

# Unique oriented porous structure





1. Matrix structure Interconnecting porous structure produced by a patented process.<sup>4,5,6</sup>

2. Mechanical properties After hydration and compression in 49 cycles in vitro. the graft regains its initial volume.<sup>4</sup>

# Clinically effective<sup>7,8,9,10</sup>

Clinically effective for soft tissue regeneration in combination with immediate implant placement and bone grafting procedure.<sup>7,8</sup>

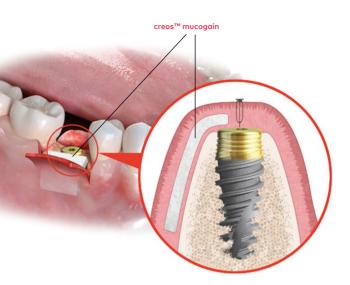
# Clinical case

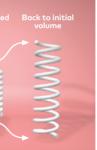
Buccal view prior to surgery (left) and 8 months after surgery (right) on #22, #24, #25, #26 after

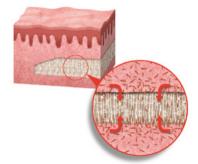




Cirillo F. (March 2020). Periodontal plastic surgery: gingival recession coverage with a xenogenic collagen matrix. The Foundation for Oral Rehabilitation (FOR.org): https://bit.ly/2TkLsgu (Images reprinted with permission of the author and FOR.)







**3. Biological outcome** Designed to promote soft tissue regeneration through the migration of cells and blood vessels into the matrix.4,6

A retrospective analysis including 45 patients with a follow-up of up to 4.5 years (mean of 1.8 ± 1.3 years) demonstrated that creos mucogain promotes soft tissue health and maintains adequate soft tissue thickness when used simultaneously with implant placement.<sup>9</sup>





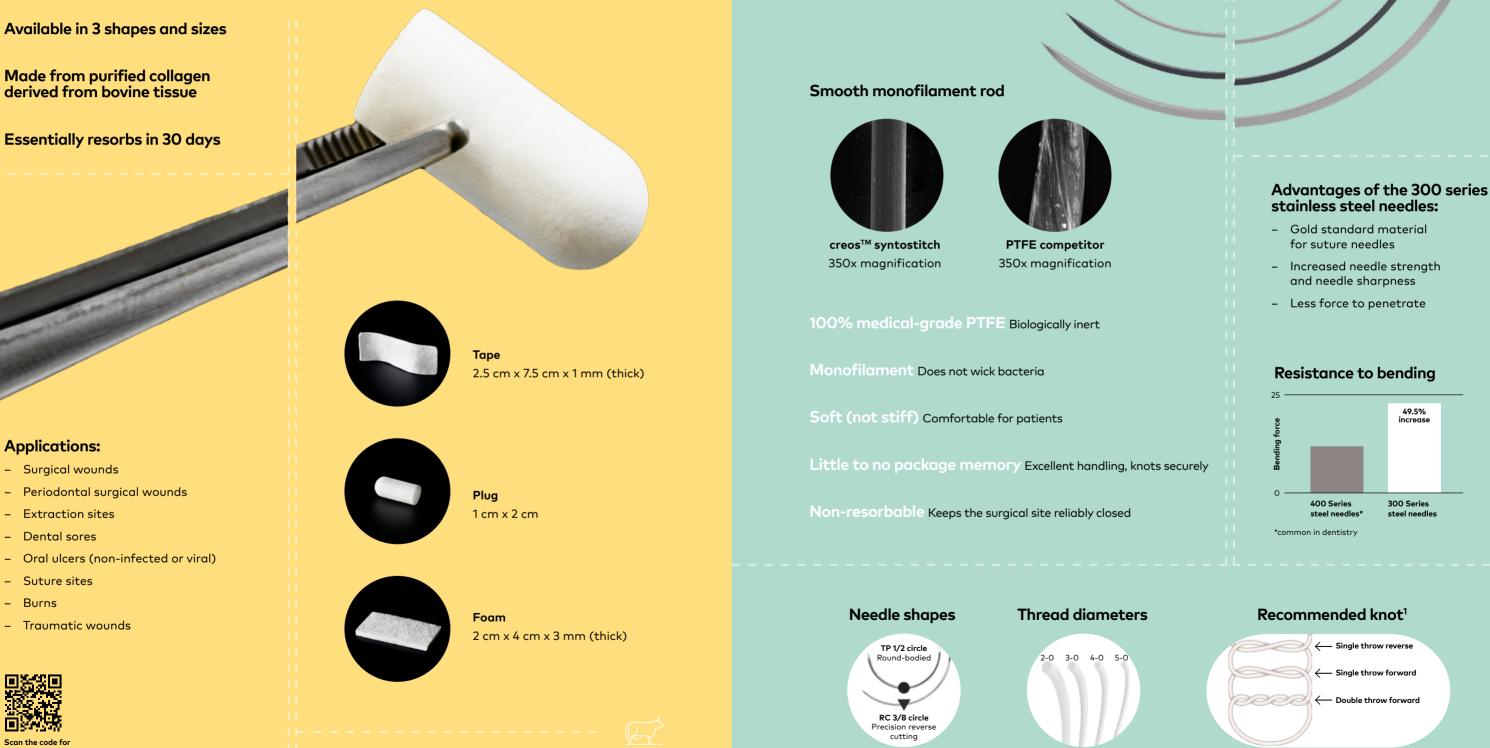
Scan the code fo more resources

# creos<sup>™</sup> xenofill

# Absorbable wound dressings to protect wound beds and aid in wound healing

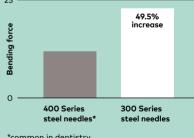
creos<sup>™</sup> syntostitch

Non-absorbable monofilament **PTFE sutures** 





- Burns



1.000

# creos<sup>™</sup> pin fixation

Absorbable and non-absorbable pins for secure and stable membrane fixation in guided bone regeneration (GBR) procedures



Securely fix resorbable, non-resorbable, and titanium-reinforced membranes to avoid micromovements of the graft.

One kit, two types of pins.

Designed for easy pick-up and release of the pins from the holder and stable transfer to the surgical site.

# creos<sup>™</sup> screw fixation

Instruments and screws for fast and easy placement of membrane, bone block, and tenting screws



# Absorbable magnesium pins:

- Peace of mind: Bioabsorbable, no second surgery needed; less complications or shine through
- **Remarkable strength:** Stronger than
- Biocompatible: Titanium free, safe for

# **Titanium pins:**

- Extremely strong: No bending or breakage, strong build and sharp tip allow for precise and reliable placement of pins in dense, cortical bone (even at an angle).
- **Easy to remove:** Designed to
- Secure and Stable: No shifting or loosening, ensuring the pin challenging surgical procedures.

# Absorption process of magnesium pins<sup>1</sup>:





Scan the code fo nore resources

# One kit for three types of screws

- bone fixation, and tenting screws
- Instruments designed to work universally

# Self-drilling screws

# Stable and secure fixation

Easy pick-up, solid stability of the screw during transfer to the surgical site, and easy placement make membrane fixation fast and easy





# Membrane fixation screws

# Tenting screws

Maintain space under





# Bone fixation screws

# **Contra-angle blade** (optional)

Designed for posterior and lingual screw placement, it attaches to latch type

# Products

# creos™ xenogain

Xenogenic bone graft substitute

Weight	Granule size	Volume	Vial	Bowl	Syringe
0.25 g		0.36 cc	N1110	N1110-B	N1210
0.5 g	-	0.82 cc	N1120	N1120-B	N1220
1.0 g	– Small (0.2–1.0 mm)	1.71 cc	N1130	N1130-B	
2.0 g	_	3.64 cc	N1140	N1140-B	
0.25 g		0.54 cc	N1111	N1111-B	N1211
0.5 g	-	1.27 cc	N1121	N1121-B	N1221
1.0 g	Large (1.0–2.0 mm)	2.69 cc	N1131	N1131-B	
2.0 g	_	5.74 cc	N1141	N1141-B	

Bovine 15 °C Made in Korea

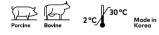




# creos™ xenogain collagen

creos™ xenogain + 10% porcine collagen type l

Weight	Block size	Article no.
0.1 g	6 × 6 × 6 mm	N1320
0.25 g	7 × 8 × 9 mm	N1330
0.5 g	9 × 10 × 11 mm	N1340



Weight	Syringe size	Article no
0.25 g	4.6 × 40 mm	N1410
0.5 g	5.6 × 45 mm	N1420

# creos™ xenoform

Xenogenic bone graft substitute

Weight	Granule size	Volume	Vial (Granules)	
0.25 g		0.5 cc	CHY25-0210	
0.5 g		1.1 cc	CHY05-0210	
1.0 g	0.2–1.0 mm	2.1 cc	CHY10-0210	
2.0 g	-	4.1 cc	CHY20-0210	
0.25 g		0.6 cc	CHY25-0512	
0.5 g	0.5–1.2 mm	1.2 cc	CHY05-0512	
1.0 g	0.5-1.2 mm	2.3 cc	CHY10-0512	
2.0 g	-	4.5 cc	CHY20-0512	

Bowhe 15 °C 25 °C Made in Korea from Australian bone



# creos<sup>™</sup> syntogain

Synthetic bone graft

Weight	Granule size	Volume	Vial
0.5 g	Small (0.2–1.0 mm)	0.50 cc	S1110
1.0 g	Small (0.2–1.0 mm)	1.00 cc	S1120
0.5 g	Large (1.0–2.0 mm)	0.50 cc	S1111
1.0 g	Large (1.0–2.0 mm)	1.00 cc	S1121





# Symbol glossary

Temperature limit

Upper limit of temperature

# Most commonly sold articles

Sy	rin	ge

CHYS25-0210

CHYS05-0210

CHYS25-0512

CHYS05-0512



# creos<sup>™</sup> xenoprotect

Nobel Biocare's highest selling resorbable collagen membrane

Size	Article no.	
15 × 20 mm	E1520	
25 × 30 mm	E2530	
30 × 40 mm	E3040	
	ade in Frmany	_

# creos™ xenofirm

Resorbable, firm, collagen membrane

Size	Units/box	Article no.
15 × 20 mm	2	CLMCM1520
20 × 30 mm	2	CLMCM2030
30 × 40 mm	2	CLMCM3040

Bovine 15 °C Made in USA

# creos<sup>™</sup> syntoprotect PTFE membrane

Non-resorbable, high-density PTFE membrane

Shape	Picture	Size	Thickness	Article no.	Units/box	Description
		12 24	200 µm	N161224-1	1	
Small		12 × 24 mm	200 µm	N161224-10	10	Designed specifically for extraction
Medium		12 × 30 mm	200 µm	N161230-10	10	<ul> <li>site grafting and augmentation</li> <li>procedures where</li> </ul>
		25 20	200 µm	N162530-1	1	exposure to the oral cavity is common
Large		25 × 30 mm	200 µm	N162530-4	4	- , ,

Synthetic 15°C Made in USA

# creos™ syntoprotect Ti-reinforced PTFE membrane

Non-resorbable, titanium reinforced, high-density PTFE membrane

Shape	Picture	Size	Thickness	1 unit per box	2 units per box	Description
La 1		12 × 24 mm	150 µm	N1615TI-01-1	N1615TI-01-2	
No. 1		12 × 24 mm	250 µm	N1625TI-01-1	N1625TI-01-2	Designed for narrow single-
No. 1,		12 20	150 µm	n/a	n/a	<ul> <li>tooth extraction sites, especially where one bony wall is missing</li> </ul>
30 mm		12 × 30 mm	250 µm	N1625TI-01-30-1	N1625TI-01-30-2	-
	N. 2		150 µm	N1615TI-02-1	N1615TI-02-2	Designed for single-tooth
No. 2		14 × 24 mm	250 µm	N1625TI-02-1	N1625TI-02-2	extraction sites, especially where one or more bony walls are missing
		47.05	150 µm	N1615TI-03-1	N1615TI-03-2	
No. 3		17 × 25 mm	250 µm	N1625TI-03-1	N1625TI-03-2	
No. 3,			150 µm	N1615TI-03L-1	N1615TI-03L-2	<ul> <li>Designed for large buccal defects</li> </ul>
80 mm		17 × 30 mm	250 µm	N1625TI-03L-1	N1625TI-03L-2	
			150 µm	N1615TI-04-1	N1615TI-04-2	Designed for large extraction sites
No. 4		20 × 25 mm	250 µm	N1625TI-04-1	N1625TI-04-2	and limited ridge augmentation
	~		150 µm	N1615TI-05-1	N1615TI-05-2	Designed for large extraction sites and limited ridge augmentation in the anterior maxilla
No. 5		36 × 25 mm	250 µm	N1625TI-05-1	N1625TI-05-2	
	33.77		150 µm	N1615TI-06-1	N1615TI-06-2	Designed for large bony defects,
No. 6		25 × 30 mm	250 µm	N1625TI-06-1	N1625TI-06-2	including ridge augmentation
	×	<b>aa</b> <i>i</i> -	150 µm	N1615TI-07-1	N1615TI-07-2	Designed for large bony defects,
No. 7		30 × 41 mm	250 µm	N1625TI-07-1	N1625TI-07-2	including ridge augmentation in the anterior maxilla
	N.X		150 µm	N1615TI-08-1	N1615TI-08-2	Designed for very large
lo. 8		30 × 40 mm	250 µm	N1625TI-08-1	N1625TI-08-2	<ul> <li>bony defects, including ridge augmentation</li> </ul>
	NHZ.		150 µm	N1615TI-09-1	N1615TI-09-2	Designed for very large
No. 9		30 × 40 mm	250 µm	N1625TI-09-1	N1625TI-09-2	<ul> <li>bony defects, including ridge augmentation</li> </ul>
		24 22	150 µm	N1615TI-10-1	N1615TI-10-2	Designed for large extraction sites,
NO. 10		24 × 38 mm	250 µm	N1625TI-10-1	N1625TI-10-2	including ridge augmentation
			150 µm	N1615TI-11-1	N1615TI-11-2	Designed for large bony defects,
No. 11		38 × 38 mm	250 µm	N1625TI-11-1	N1625TI-11-2	Designed for large bony defects, including ridge augmentation
	-  -	38 × 38 mm	150 µm	N1615TI-12-1	N1615TI-12-2	Designed for large bony defects, including distal extension of the posterior ridge
No. 12			250 µm	N1625TI-12-1	N1625TI-12-2	
	NHZ.		150 µm	N1615TI-13-1	N1615TI-13-2	Designed for the largest
No. 13		40 × 50 mm	250 µm	N1625TI-13-1	N1625TI-13-2	bony defects, including ridge augmentation

Synthetic 15°C Made in USA

# creos<sup>™</sup> syntoprotect mesh

Non-resorbable mesh

Shape	Picture	Size	Thickness	1 unit per box	Description	
No. 3	×+=	17 × 25 mm	200 µm	301871		
No. 3, 30 mm	<u>&gt;</u>	17 × 30 mm	200 µm	301892	Designed for large buccal defects	
No. 4	Ж	20 × 25 mm	200 µm	301872	Designed for large extraction sites and limited ridge augmentation	
No. 5	1 1 1	36 × 25 mm	200 µm	301873	Designed for large extraction sites and limited ridge augmentation in the anterior maxilla	
No. 6	>*	25 × 30 mm	200 µm	301874	Designed for large bony defects, including ridge augmentation	
No. 7	X	30 × 41 mm	200 µm	301875	Designed for large bony defects, including ridge augmentation in the anterior maxilla	
No. 8		30 × 40 mm	200 µm	301876	Designed for very large bony defects, including ridge augmentation	
No. 9	Ж	30 × 40 mm	200 µm	301877	_ Designed for very large bony defects, including ridge augmentation	
No. 9M	Ж	30 × 40 mm	200 µm	301878		
No. 10	-  -	24 × 38 mm	200 µm	301879	Designed for large extraction sites,	
No. 10M	H	24 × 38 mm	200 µm	301880	including ridge augmentation	
No. 11		38 × 38 mm	200 µm	301881	_ Designed for large bony defects, including ridge augmentation	
No. 11M		38 × 38 mm	200 µm	301882		
No. 12		38 × 38 mm	200 µm	301883	Designed for large bony defects, including distal extension of the posterior ridge	
No. 13	XK	40 × 50 mm	200 µm	301886	Designed for the largest bony defects, including ridge augmentation	

Synthetic 15°C 30°C Made in USA

# creos™ mucogain

Absorbable collagen matrix

Size	Block size	Article no.
15 × 20 mm	3 mm	MU15203
25 × 30 mm	3 mm	MU25303
15 × 20 mm	5 mm	MU15205
25 × 30 mm	5 mm	MU25305





# creos™ xenofill

Absorbable wound dressing

Size	Size	Units/box	Article no.
Plug	1 × 2 cm	10	CLMBDDWDP1020
Foam	2 × 4 cm	10	CLMBDDWDF2040
Таре	2.5 × 7.5 cm	10	CLMBDDWDT2575

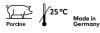


# creos<sup>™</sup> syntostitch

Non-absorbable PTFE suture – monofilament

Needle shape	USP	Needle size	Needle color	Suture length 45 cr 12 units per box
<b>TP 1/2 circle</b> Round-bodied	4-0	13 mm		301815
	2-0	19 mm		301805
-	3-0	16 mm		301807
		19 mm		301809
RC 3/8 circle		16 mm	black	301811
Precision		19 mm	black	301813
reverse cutting -		13 mm		301817
	4-0	16 mm		301819
-	5-0	13 mm		301821
		16 mm		301823

Synthetic 15°C 30°C Made in USA





cm x	TP 1/2 circle Round-bodied
	RC 3/8 circle
	Precision reverse cutting
	2-0 3-0 4-0 5-0

5 cm ox	Suture length 70 cm 12 units per box
	301816
	301806
	301808
	301810
	301812
	301814
	301818
	301820
	301822
	301824

# creos<sup>™</sup> screw fixation

Titanium screws for membrane/bone fixation and tenting



## Made in USA

# Stabilization kit includes

- Storage tray with screw organizer dial
- Stainless steel driver handle
- 76 mm cruciform driver blade
- 56 mm cruciform driver blade



# Contra angle driver blade

Description	Article no.		
24 mm	301802		

Individual components	
Description	

Description	1 unit per box
Cruciform driver blade, 76 mm	301800
Cruciform driver blade, 56 mm	301801
Stainless steel driver handle	301803
Autoclavable storage tray	301804
Latch Type Pilot Drill, 1.2 mm	HGMBI1001

# Membrane fixation kit Article 301779

Tenting kit Article 301782

Bone fixation kit Article 301791

Products included

Self-drilling tenting screw

Products included

Stabilization kit

Self-tapping bone fixation screw

Stabilization kit

Products included	Size	QTY
Stabilization kit		1
Self-drilling membrane fixation screw	1.5 × 3 mm	20

Size

1.5 × 3 mm

1.5 × 4 mm

1.5 × 5 mm

Size

1.5 × 8 mm 1.5 × 10 mm

1.5 × 12 mm

1.5 × 14 mm

QTY

1

4

4

4

QTY

1

2

4

4

2

# Size 5 units per box 1.5 × 3 mm 301780 1.5 × 5 mm 301781



# Tenting screws

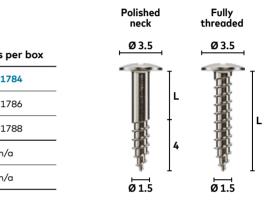
Size	Special	1 unit per box	5 units	
1.5 × 3 mm polished neck		301783	301	
1.5 × 4 mm polished neck	+4 mm threaded portion	301785	301	
1.5 × 5 mm polished neck	-	301787	301	
1.5 × 8 mm	fully threaded	301789	n,	
1.5 × 10 mm	fully threaded	301790	n,	
Made in				

\_\_\_\_\_ Made ir Titanium USA

# Bone fixation screws

Size	1 unit per box	5 units per box
1.5 × 8 mm	301792	301793
1.5 × 10 mm	301794	301795
1.5 × 12 mm	301796	301797
1.5 × 14 mm	301798	301799
Made in Titanium USA		

Ø 2.5





All measurements in millimeters.



Connect to Nobel Biocare Online store

# creos™ pin fixation

Titanium and magnesium pins for membrane fixation



FILL LIXULION KIL ALLICIE CP200	Pin fixatio	n kit Article CP200
---------------------------------	-------------	---------------------

Products included	Size	QTY
Kit with no pins included		1

Made in Germany

# creos pin fixation

# - Fully autoclavable kit

- Pin holder
- 2 initial burs
- 2 twist drills
- NO PINS

Bioabsorbab	ole magne	sium pins	Ø 2.4
Size	QTY	Article	
Ø2.4 x 3.5 mm	5	MTC638973	3.5
Ø2.4 x 3.5 mm	3	MTC638974	Ø 1.0

TIATIC	Made in
	Germany

Non-absorbe	able titani	um pins	Ø 2.4
Size	QTY	Article	
Ø2.4 x 3.3 mm	10	CP110	V
Ø2.4 x 3.3 mm	50	CP150	Ø 0.8

3.3

Titanium Germany

# Individual components

Description	Usage	Article		
Pin holder	To insert absorbable and non-absorbable pins	CP300	-	creos™ p
Initial bur	For pre—drilling prior to insertion of the pins (recommended in cases of very hard bone)	HGM186RF		
Twist drill	For decortication to place bleeding points in the bone	HGM203RF		
Master Pin Decortication Bur 2x	Twist drill with depth stop to place bleeding points in bone	HGM203S-012-RA		
Not included in the kit		HGM2035-012-RA	<u>2</u>	
Hammer with a plastic and a metal side	Used to insert pin into	HGMMI154		-
Not included in the kit	surgical area			16-01

# References

# creos<sup>™</sup> xenogain

1. Nobel Biocare, data on file.

**2.** Rhee S-H, Park HN, Seol Y-J et al. Effect of heattreatment temperature on the osteoconductivity of the apatite derived from bovine bone. 2006 Key Engineering Materials 309-311:41-44 <u>Read</u>

**3.** Arrighi I, Wessing B, Rieben A, et al. Resorbable collagen membranes expansion in vitro. J Dent Res 2014;93 (Spec Iss B):631 <u>Read on Pubmed</u>

**4.** Park JB, et al. Maxillary sinus floor augmentation using deproteinized bovine bone-derived bone graft material (OCS-B). Clinical and histologic findings in humans. The Journal of the Korean Dental Association. 2007;45(8):491–99 <u>Read on Pubmed</u>

**5.** Shin S-Y, et al. Long-term results of new deproteinized bovine bone material in a maxillary sinus graft procedure. J Periodontal Implant Sci. 2014;44;259-64. <u>Read on Pubmed</u>

**6.** Aleksic Z, Milikovic I, Lazic Z, et al. A multicenter clinical investigation demonstrates bone regeneration in severe horizontal defects in the posterior mandible using creos<sup>™</sup> xenoprotect: Interim results. J Clin Periodontol 2018;45(S19):306 <u>Read</u>

**7.** Park HN, Han, SH, Kim KW, et al. A study on the safety and efficacy of bovine bone-derived bone graft material (OCS-B). J Korean Acad Periodontol. 2005 Jun;35(2):335 – 43 <u>Read</u>

**8.** Kim Y-T, et.al. Periodontal Repair on Intrabony Defects treated with Anorganic Bovine-derived Xenograft.J Korean Acad Periodontol. 2007;37(3):489 – 96

**9.** Fernandez de Grado G, Keller L, Idoux-Gillet Y et al. Bone substitutes: a review of their characteristics, clinical use, and perspectives for large bone defects management. Journal of Tissue Engineering Volume 9: 1–18, 2018 <u>Read on Pubmed</u>

**10.** Zhang K, Fan Y, Dunne N et al. Effect of microporosity on scaffolds for bone tissue engineering. Regenerative Biomaterials, 2018, 115–124 <u>Read on Pubmed</u>

# creos<sup>™</sup> xenoform

**1.** Suzuki O, Shiwaku Y, Hamai R. Octacalcium phosphate bone substitute materials: Comparison between properties of biomaterials and other calcium phosphate materials. Dent Mater J. 2020;39(2):187-199. doi:10.4012/dmj.2020-00 <u>Read on Pubmed</u> 2. Anil A, Sadasivan A, Koshi E. Physicochemical Characterization of Five Different Bone Graft Substitutes Used in Periodontal Regeneration: An In Vitro Study. J Int Soc Prev Community Dent. 2020;10(5):634-642. Published 2020 Sep 28. doi:10.4103/jispcd.JISPCD\_263\_20 Read

**3.** JH. Lee, JH Kim, JHong Jeon, Bone Regeneration of Macropore Octacalcium Phosphate–Coated Deproteinized Bovine Bone Materials in Sinus Augmentation: A Prospective Pilot Study, Implant Dentistry, 2015;24(3):275-280 <u>Read on Pubmed</u>

# creos<sup>™</sup> syntogain

1. Hoornaert A, Maazouz Y, Pastorino D, et al. Vertical Bone Regeneration with Synthetic Biomimetic Calcium Phosphate onto the Calvaria of Rats. Tissue Eng Part C Methods. 2019 Jan;25(1):1-11. doi: 10.1089/ten. TEC.2018.0260. PMID: 30501579. <u>Read on Pubmed</u>

2. Barba A, Diez-Escudero A, Espanol M, et al. Impact of biomimicry in the design of osteoinductive bone substitutes: nanoscale matters. ACS Appl. Mater. Interfaces 2019. DOI:10.1021/ acsami.8b20749. Read on Pubmed

**3.** Data on file: Mimetis XRD analysis report using the RIR quantification method. Medical device composition certificate.

**4.** Barba A, Diez-Escudero A, Maazouz Y, et al. Osteoinduction by foamed and 3D-printed calcium phosphate scaffolds: effect of nanostructure and pore architecture. ACS Appl. Mater. Interfaces 2017. DOI:10.1021/acsami.7b14175. <u>Read on Pubmed</u>

**5.** Sadowska JM, Guillem-Marti J, Montufar EB, Espanol M, Ginebra MP. \* Biomimetic Versus Sintered Calcium Phosphates: The In Vitro Behavior of Osteoblasts and Mesenchymal Stem Cells. Tissue Eng Part A. 2017 Dec;23(2324):1297-1309. doi: 10.1089/ten.TEA.2016.0406. Epub 2017 Feb 21. PMID: 28107811. <u>Read on Pubmed</u>

**6.** Data on file: Milestone 2 study (page 18)

**7.** Konka J, Espanol M, Bosch BM, de Oliveira E, Ginebra MP. Maturation of biomimetic hydroxyapatite in physiological fluids: a physicochemical and proteomic study. Mater Today Bio. 2021 Sep 15;12:100137. doi: 10.1016/j.mtbio.2021.100137. PMID: 34632362; PMCID: PMC8487082. <u>Read on Pubmed</u> **8.** Hannink G, Arts C. Bioresorbability, porosity and mechanical strength of bone substitutes: What is optimal for bone regeneration? Injury, Volume 42, Supplement 2, 2011, Pages S22-S25, ISSN 0020-1383. <u>Read on Pubmed</u>

9. Data on file: Clinical cases from 2022.

**10.** Raymond Y, Pastorino D, Ginebreda I, et al. Computed tomography and histological evaluation of xenogenic and biomimetic bone grafts in three-wall alveolar defects in minipigs. Clin Oral Investig. 2021 Dec;25(12):6695-6706. doi: 10.1007/s00784-021-03956-y. Epub 2021 May 1. PMID: 33931811. <u>Read on Pubmed</u>

**11.** Data on file: Granules handling Voice of Customer from 2017-2018 + GKEM Handling Questionnaires Results from 2022.

12. Data on file: Milestone 2 report (chapter 2.5.1)

**13.** Henkel KO, Gerber T, Lenz S, Gundlach KK, Bienengräber V. Macroscopical, histological, and morphometric studies of porous bonereplacement materials in minipigs 8 months after implantation. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2006 Nov;102(5):606-13. doi: 10.1016/j. tripleo.2005.10.034. Epub 2006 May 19. PMID: 17052636. <u>Read on Pubmed</u>

14. Weibrich G, Trettin R, Gnoth SH, et al. Bestimmung der Größe der spezifischen Oberfläche von Knochenersatzmaterialien mittels Gasadsorption. (Alternate title: Analysis of the size of the specific surface area of one regeneration materials by gas adsorption). Mund Kiefer GesichtsChir (2000) 4:148-152 Springer-Verlag 2000. Read

**15.** Rufino Senra M, de Fátima Vieira Marques M. Synthetic Polymeric Materials for Bone Replacement. J. Compos. Sci. 2020,4, 191;doi:10.3390/jcs4040191. <u>Read</u>

**16.** Ginebra MP, Espanol M, Maazouz Y, Bergez V, Pastorino D. Bioceramics and bone healing. EFORT Open Rev 2018;3 DOI: 10.1302/2058-5241.3.170056. <u>Read on Pubmed</u>

**17.** Ginebra Cairó I., Roig Cayón M., Velasco-Ortega E. et al., Biomimetic synthetic bone graft in alveolar ridge preservation: 1-year RCT results, Abstract N°EAO-647 EAO Geneva 2022.

# creos<sup>™</sup> xenoprotect

**1.** Aleksic Z. A multicenter clinical investigation demonstrates bone regeneration in severe horizontal defects in the posterior mandible using creos xenoprotect: Interim results. Conference: Europerio 9, July 2018. <u>Read</u>

2. Wessing B, Emmerich M, Bozkurt A. Horizontal ridge augmentation with a novel resorbable collagen membrane: a retrospective analysis of 36 consecutive patients. Int J Periodontics Restorative Dent 2016;36(2):179–187. <u>Read on Pubmed</u>

**3.** Bozkurt A, Apel C, Sellhaus B, et al. Differences in degradation behavior of two non-cross-linked collagen barrier membranes: an in vitro and in vivo study. Clin Oral Impl Res; 2014; 25(12):1403-1411 <u>Read on Pubmed</u>

**4.** Gasser A, Wessing B, Eummelen L, et al. Mechanical stability of collagen membranes: an in vitro study. J Dent Res 2016;95(Spec Iss A): 1683 <u>Read</u>

**5.** Wessing B, Urban I, Montero E, et al. A multicenter randomized controlled clinical trial using a new resorbable non-cross- linked collagen membrane for guided bone regeneration at dehisced single implant sites: interim results of a bone augmentation procedure. Clin Oral Impl Res; 2017;28(11):e218–e226. <u>Read on Pubmed</u>

**6.** Sanz-Sanchez I, Wessing B, Polizzi G, et al. Randomized clinical trial comparing two resorbable collagen membranes demonstrates good bone formation and soft tissue healing with GBR at single implant sites with dehiscence defects. J Clin Periodontol 2018;45(S19):19–20 [oral presentation]. <u>Read</u>

7. Omar O, Dahlin A, Gasser A, et al. Tissue dynamics and regenerative outcome in two resorbable noncross- linked collagen membranes for guided bone regeneration: A preclinical molecular and histological study in vivo. Clin Oral Impl Res; 2018;29(1):7–19 <u>Read on Pubmed</u>

8. Aleksic Z, Milikovic I, Lazic Z, et al. A multicenter clinical investigation demonstrates bone regeneration in severe horizontal defects in the posterior mandible using creos<sup>™</sup> xenoprotect: Interim results. J Clin Periodontol 2018;45(S19):306 <u>Read</u>

**9.** Raz P, Brosh T, Ronen G, Tal H. Tensile Properties of Three Selected Collagen Membranes. Biomed Res Int. 2019 Dec 5;2019:5163603. doi: 10.1155/2019/5163603. PMID: 31886222; PMCID: PMC6915138. <u>Read on Pubmed</u> **10.** Jäger M, Degistirici O, Knipper A, Fischer J, Sager M, Krauspe R. Bone healing and migration of cord blood-derived stem cells into a critical size femoral defect after xenotransplantation. J Bone Miner Res. 2007;22(8): 1224-33. <u>Read on Pubmed</u>

**11.** Redemagni M, Mascetti T, Garlini G. Post-Extractive Immediate Implant Placement and Immediate Provisionalization at Sites Requiring Buccal Bone Regeneration:. EC Dental Science. 2019(18.6): 1207-16. <u>Read</u>

**12.** Cadenas-Vacas G, Martínez-Rodríguez N, Barona-Dorado C, Sánchez-Labrador L, Cortés-Bretón Brinkmann J, Meniz-García C, et al. Calcium Phosphate Modified with Silicon vs. Bovine Hydroxyapatite for Alveolar Ridge Preservation: Densitometric Evaluation, Morphological Changes and Histomorphometric Study. Materials (Basel) [Internet]. 2021;14(4): 940. <u>Read</u>

**13.** Bruyckere T de, Cosyn J, Younes F, Hellyn J, Bekx J, Cleymaet R, et al. A randomized controlled study comparing guided bone regeneration with connective tissue graft to reestablish buccal convexity: One-year aesthetic and patient-reported outcomes. Clin Oral Implants Res. 2020;31(6): 507-16. <u>Read on Pubmed</u>

14. J. Jiménez Garcia, S. Berghezan, J.M.M. Caramês, M.M. Dard, D.N.S. Marques, Effect of cross-linked vs non-cross-linked collagen membranes on bone: A systematic review, J Periodont Res. 2017;1–10. Read on Pubmed

**15.** Bruyckere T de, Eeckhout C, Eghbali A, Younes F, Vandekerckhove P, Cleymaet R, et al. A randomized controlled study comparing guided bone regeneration with connective tissue graft to re-establish convexity at the buccal aspect of single implants: A one-year CBCT analysis. J Clin Periodontol. 2018;45(11): 1375-87. <u>Read on Pubmed</u>

**16.** González Regueiro I, Martínez Rodriguez N, Barona Dorado C, Sanz-Sánchez I, Montero E, Ata-Ali J, et al. Surgical approach combining implantoplasty and reconstructive therapy with locally delivered antibiotic in the treatment of peri-implantitis: A prospective clinical case series. Clin Implant Dent Relat Res. 2021;23(6): 864-73. <u>Read on Pubmed</u>

# creos<sup>™</sup> syntoprotect

**1.** Fotek PD, Neiva RF, Wang HL. Comparisonof dermal matrix and polytetrafluoroethylenemembrane for socket bone augmentation: a clinicaland histologic study. J Periodontol 2009;80:776-785. <u>Read on Pubmed</u>

**2.** Barboza EP, Francisco BS, Ferreira VF. Soft tissue enhancement using non-expanded PTFE membranes without primary closure [abstract]. Presented at the 2008 Research Forum Poster Session. Annual Meeting of the American Academy of Periodontology (AAP) in Seattle, WA, September 6-9, 2008. **3.** Ronda M, Rebaudi A, Torelli L, Stacchi C. Expanded vs. dense polytetrafluoroethylene membranes in vertical ridge augmentation around dental implants: a prospective randomized controlled clinical trial. Clin Oral Impl Res; 2014 Jul;25(7):859-66. <u>Read on Pubmed</u>

**4.** Barboza EP, Stutz B, Ferreira VF, Carvalho W. Guided bone regeneration using nonexpanded polytetrafluoroethylene membranes in preparation for dental implant placements - a report of 420 cases. Implant Dent. 2010;19:2-7. <u>Read on Pubmed</u>

**5.** Hoffman O, Bartee BK, Beaumont C, Kasaj A, Deli G, Zafiropoulos GG. Alveolar bone preservation in extraction sockets using non-resorbable dense PTFE membranes: A retrospective non-randomized study. J Periodontol 2008;79:1355-1369. <u>Read on Pubmed</u>

# creos<sup>™</sup> syntoprotect mesh

**1.** Urban IA, Saleh MHA, Ravidà A, Forster A, Wang HL, Barath Z. Vertical bone augmentation utilizing a titanium-reinforced PTFE mesh: A multi-variate analysis of influencing factors. Clin Oral Implants Res. 2021 Jul;32(7):828-839. <u>Read on Europe PMC</u>.

**2.** Bettini S, Rengo C, Fiorino A, Cucchi A. Vertical Ridge Augmentation Using Reinforced PTFE Mesh Versus Customized Titanium Mesh. Preliminary Results Of A Randomized Clinical Trial. Poster presented at the 2020 IAO in Milan Italy. <u>Access the study</u>.

# creos<sup>™</sup> mucogain

**1.** Aguirre-Zorzano LA, García-De La Fuente AM, Estefanía-Fresco R, et al. Complications of harvesting a connective tissue graft from the palate. A retrospective study and description of a new technique. J Clin Exp Dent 2017;9(12):e1439-e1445. <u>Read on Pubmed</u>

**2.** Griffin TJ, Cheung WS, Zavras AI, et al. Postoperative complications following gingival augmentation procedures. J Periodontol 2006;77(12):2070-2079. <u>Read on Pubmed</u>

**3.** Harris RJ, Miller R, Miller LH, et al. Complications with surgical procedures utilizing connective tissue grafts: a follow-up of 500 consecutively treated cases. Int J Periodontics Restorative Dent 2005;25(5):449-459.C513 <u>Read on Pubmed</u>

**4.** Damink L.O., Heschel I, Leemhuis H. et al Gasser A, Wessing B, Eummelen L, et al. Soft tissue volume augmentation in the oral cavity with a collagen-based 3D matrix with orientated open pore structure. Current Directions in Biomedical Engineering 2018; 4(1): 237 – 241 References 1-10 11-20 <u>Read on Researchgate</u>

**5.** Heschel I, et al. 2002. Method for producingporous structures. US patent 6,447,701 B1. **6.** Boekema B., Vlig F, Damink O.L. et al. Effect of pore size and cross-linking of a novel collagenelastin dermal substitute on wound healing. J Mater Sci Mater Med 2014:25(2):423-433 <u>Read on Pubmed</u>

7. Wessing B, Vasilic N. Soft tissue augmentation with a new regenerative collagen 3-D matrix with oriented open pores as a potential alternative to autologous connective tissue grafts. Clin Oral Impl Res; 2014 Sep;25(s10)

**8.** Sanz-Martin I, Encalada C, Sam-Sanchez I, et al. Soft tissue augmentation at immediate implants using a novel xenogeneic collagen matrix in conjunction with immediate provisional restorations: A prospective case series. Clin Implant Dent Relat Res 2019;21(1):145-153. <u>Read on Pubmed</u>

**9.** Cirillo F and Encalada C. Periodontal plastic surgery: treatment of multiple gingival recessions. FOR.org <u>Read on FOR.org</u>

# creos<sup>™</sup> xenofill

Basma, H. S., Saleh, M. H. A., Abou-Arraj, R. V., Imbrogno, M., Ravida, A., Wang, H. L., Li, P., & Geurs, N. (2023). Patient-reported outcomes of palatal donor site healing using four different wound dressing modalities following free epithelialized mucosal grafts: A four-arm randomized controlled clinical trial. Journal of periodontology, 94(1), 88–97. <u>Read on Pubmed</u>

# creos<sup>™</sup> syntostitch

1. Abellán, D., Nart, J., Pascual, A., Cohen, R. E., & Sanz-Moliner, J. D. (2016). Physical and Mechanical Evaluation of Five Suture Materials on Three Knot Configurations: An in Vitro Study. Polymers, 8(4), 147. <u>Read</u>

**2.** Taysi AE, Ercal P, Sismanoglu S. Comparison between tensile characteristics of various suture materials with two suture techniques: an in vitro study. Clin Oral Investig. 2021 Apr 14. <u>Read on Pubmed</u>

**3.** Silverstein LH, Kurtzman GM, Shatz PC. Suturing for optimal soft-tissue management. J Oral Implantol. 2009;35:82-90. <u>Read on Pubmed</u>

**4.** Silverstein LH. Suturing principles: Preserving needle edges during dental suturing. PPAD. 2005;17:562-564.

5. Urban IA, Lozada JL, Wessing B, Suárez-López del Amo F, Wang HL. Vertical Bone Grafting and Periosteal Vertical Mattress Suture for the Fixation of Resorbable Membranes and Stabilization of Particulate Grafts in Horizontal Guided Bone Regeneration to Achieve More Predictable Results: A Technical Report. Int J Periodontics Restorative Dent. 2016;36(2):153-159. doi:10.11607/prd.2627 <u>Read on Pubmed</u>

# creos<sup>™</sup> pin fixation

**1.** Silva L, Köcher P, Kopp A, et al.. Resorbable Magnesium-based Membrane Fixation Pins with Enhanced Mechanical Properties: Pre-clinical and Clinical evaluation. EAO 2024 Joint Meeting with IAO & SIdP.

**2.** Herzog P, Rendenbach C, Turostowski M, et al. Titanium versus plasma electrolytic oxidation surface-modified magnesium miniplates in a forehead secondary fracture healing model in sheep. Acta Biomaterialia. 2024; <u>Read</u>

**3.** Rendenbach C, Fischer H, Kopp A, et al. Improved in vivo osseointegration and degradation behaviour of PEO surface-modified WE43 magnesium plates and screws after 6 and 12 months. Materials Science and Engineering. 2021. Volume 129. <u>Read</u>

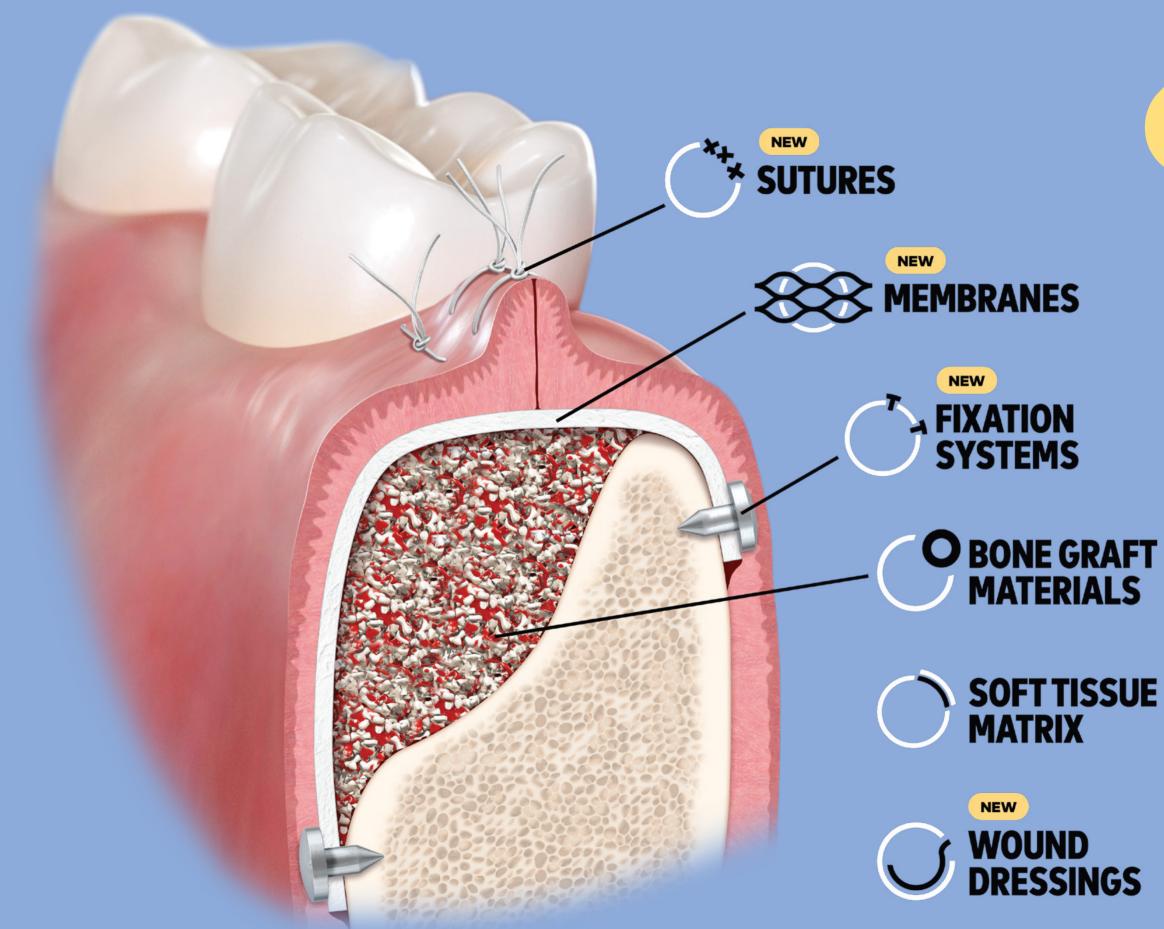
# creos<sup>™</sup> screw fixation

**1.** Plonka, A. B., Urban, I. A., & Wang, H. L. (2018). Decision Tree for Vertical Ridge Augmentation. The International journal of periodontics & restorative dentistry, 38(2), 269–275. <u>Read on Pubmed</u>

2. Urban, I. A., Monje, A., Lozada, J., & Wang, H. L. (2017). Principles for Vertical Ridge Augmentation in the Atrophic Posterior Mandible: A Technical Review. The International journal of periodontics & restorative dentistry, 37(5), 639–645. <u>Read on Pubmed</u>

**3.** Gultekin, B. A., Cansiz, E., & Borahan, M. O. (2017). Clinical and 3-Dimensional Radiographic Evaluation of Autogenous Iliac Block Bone Grafting and Guided Bone Regeneration in Patients With Atrophic Maxilla. Journal of oral and maxillofacial surgery : official journal of the American Association of Oral and Maxillofacial Surgeons, 75(4), 709–722. https://doi. org/10.1016/j.joms.2016.11.019 <u>Read on Pubmed</u>

**4.** Wessing B, Urban I, Montero E, et al. A multicenter randomized controlled clinical trial using a new resorbable non-cross- linked collagen membrane for guided bone regeneration at dehisced single implant sites: interim results of a bone augmentation procedure. Clin Oral Impl Res; 2017;28(11):e218–e226. Read on Pubmed





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