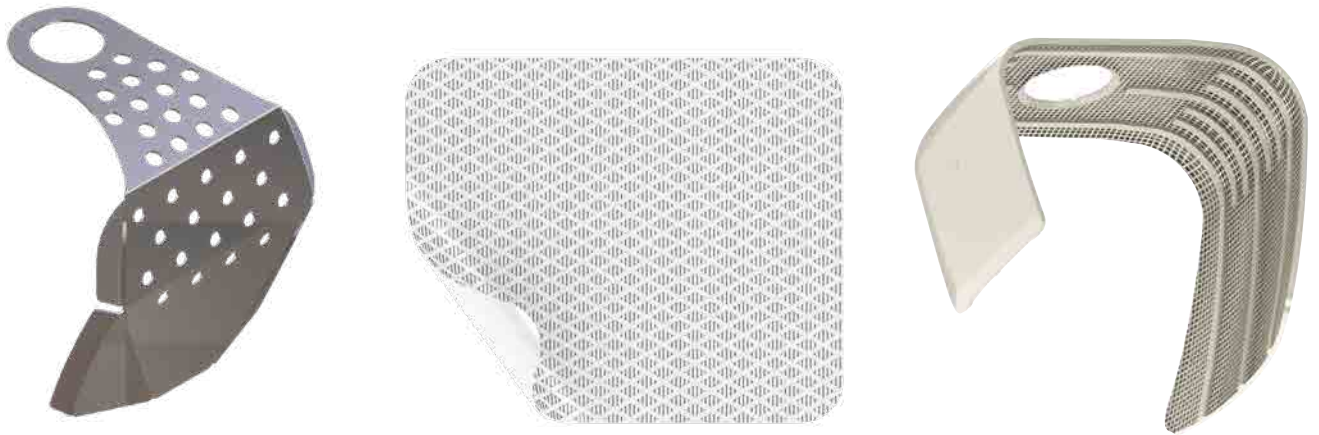


Membranes



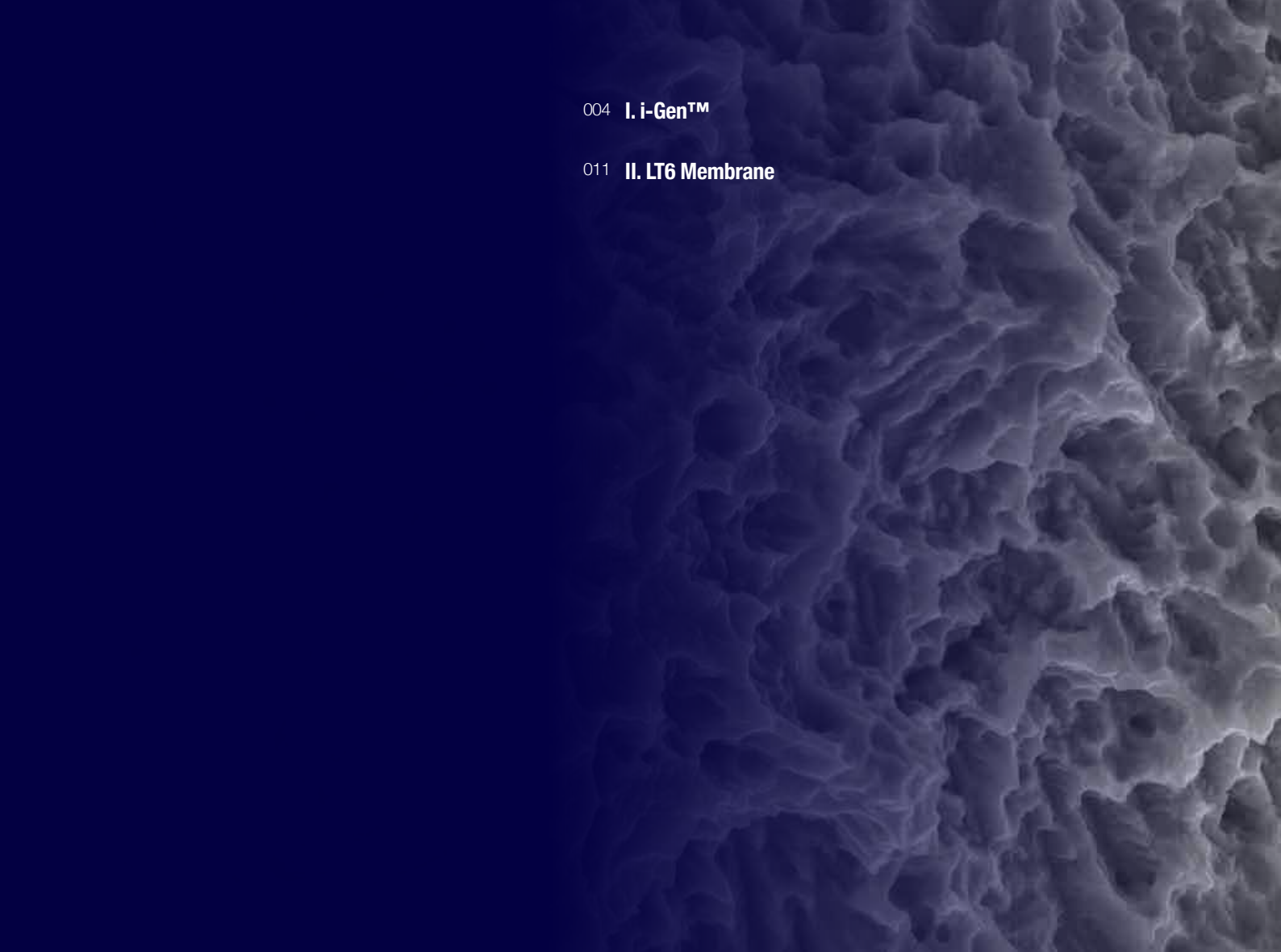
GBR membrane for ideal regeneration



Membranes

004 **I. i-Gen™**

011 **II. LT6 Membrane**



Augmentation

I. i-Gen



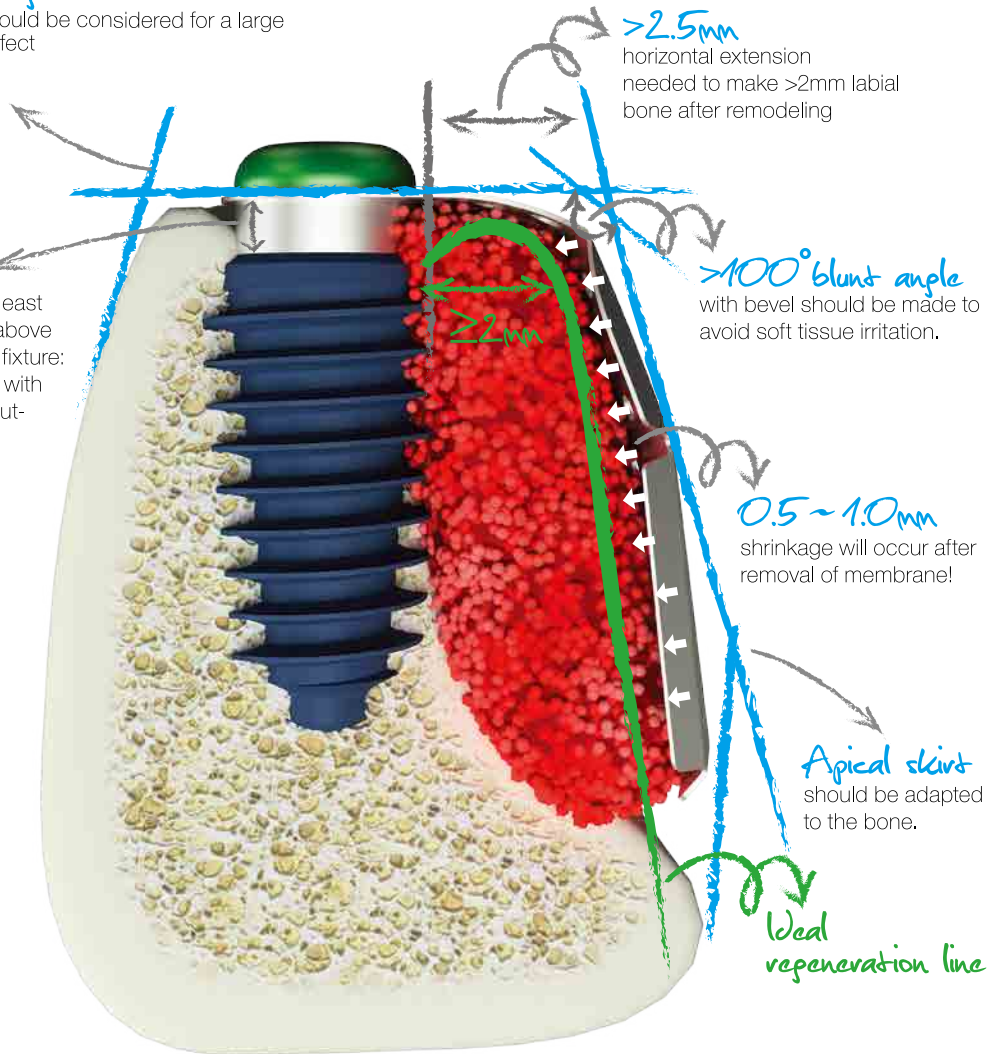
Various height of healing abutment and Cover screw

should be prepared to allow a one or two phase surgical approach according to the situation.

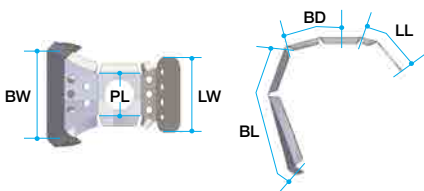
Lingual Extension

should be considered for a large defect

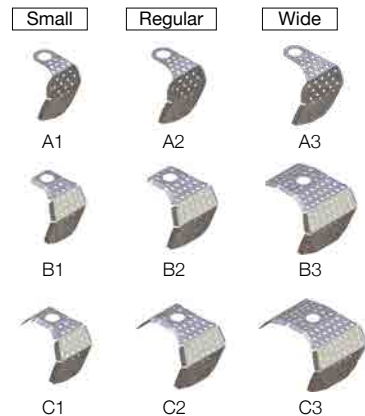
Need to have at least **1mm** of space above the platform of a fixture: Make this space with a pre-existing abutment, eg, Flat abutment...



i-Gen Membrane



PL (Proximal Length)	BW (Buccal width)	Dimension					Type	Ref.C
		BL (Buccal Length)	BD (Buccal Distance)	LW (Lingual width)	LL (Lingual Length)			
4	9	11	4.5	-	-	A1	IG1W4509	
4	10	11	5.5	-	-	A2	IG1W5510	
4	11	11	6.5	-	-	A3	IG1W6511	
5	9	11	4.5	-	-	B1	IG2W0918	
6.5	11	11	5.5	-	-	B2	IG2W1120	
9	13	11	6.5	-	-	B3	IG2W1323	
5	9	11	4.5	6	4.25	C1	IG3W0921	
6.5	11	11	5.5	8	4.25	C2	IG3W1125	
9	13	11	6.5	10	9	C3	IG3W1328	
8	11	11	5.5	9.6	9.25	D1	IG4W1128	



➔ i-Gen Components

i-Gen Screw

* We recommend that you verify the size of the abutment screws before use, it should be noted that it may not be fully compatible depending on the tolerance of each manufacturer.

M 2.0

- MegaGen (AnyOne, EZ Plus(R&W) & MegaFix)
- Straumann (Standard & Standard Plus)
- Nobel Biocare (Nobel Replace Tapered Groovy)
- Dentium (Superline)
- Dio (Steady, SM, IFI)
- Neobiotech (IS)
- Osstem (TS IV)

M 1.8

- MegaGen (AnyRidge)
- Dentsply-Frident (Ankylos C/X Implant)
- Zimmer (TSV)

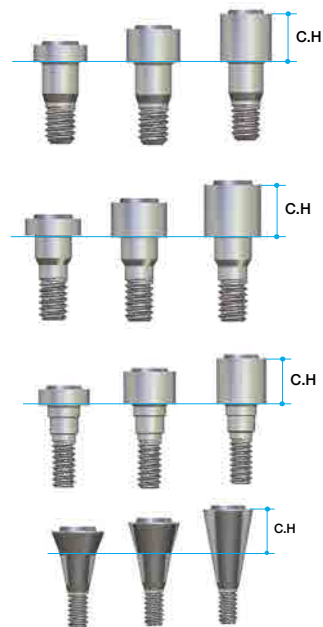
M 1.6

- MegaGen (AnyRidge Octa 1, EZ Plus Internal _Small)
- Straumann (Bone Level)
- 3i (Osseotite certain & Full Osseotite NT Certain)

M 1.4

- MegaGen (MiNi)

Type	Cuff Height (mm)	Ref.C
M2.0	1.0	IA2010
	2.0	IA2020
	3.0	IA2030
	4.0	IA2040
	5.0	IA2050
M1.8	1.0	IA1810
	2.0	IA1820
	3.0	IA1830
	4.0	IA1840
	5.0	IA1850
M1.6	1.0	IA1610
	2.0	IA1620
	3.0	IA1630
	4.0	IA1640
	5.0	IA1650
M1.4	1.5	IA1415
	2.0	IA1420
	3.0	IA1430
	4.0	IA1440
	5.0	IA1450

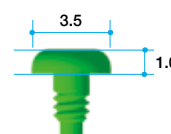


i-Gen Cover Screw

- Use Hand Driver(1.2 Hex)

- Used for primary closure after i-Gen(on top of i-Gen screw).

Type	Height (mm)	Ref.C
Hex 1.2	1.0	ICS3510



Flat Healing Abutment

- Used for one stage approach after i-Gen (on top of i-Gen screw).

Height(mm)	Ref.C
2	FHA402
3	FHA403
4	FHA404



Hand Driver (1.6 Hex)

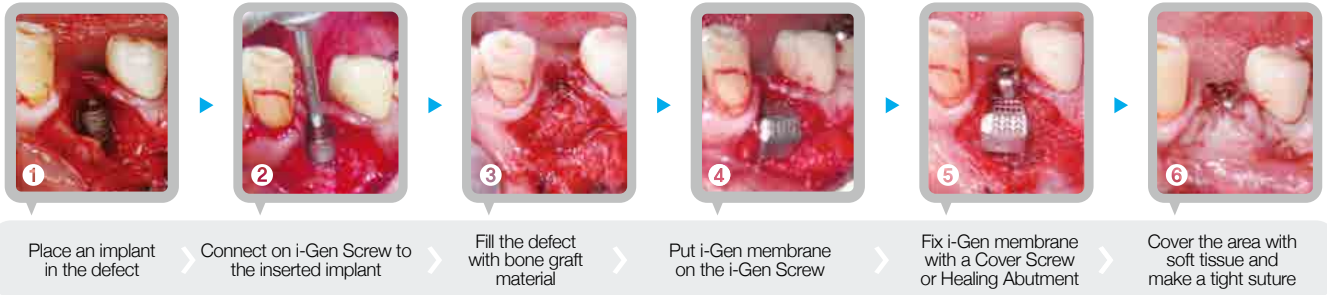
- This driver is designed to deliver i-Gen screw into a fixture. Just finger force is enough to tighten the i-Gen screw.

Length(mm)	Type	Ref.C
10	Short	TCMHDS1600



➔ i-Gen Package

MegaGen offers two convenient and cost effective i-Gen packages for starters. Experience the wonderful outcomes of i-Gen membrane.



Full Package

- Kindly note that i-Gen membrane should go with proper i-gen screw type.
- Please choose proper i-gen membrane according to i-gen screw type.

Type	Ref.C
M2.0	IGFP20
M1.8	IGFP18
M1.6	IGFP16
M1.4	IGFP14

Full Package

A : 1 wall defect B : 2 wall defect C : 3 wall defect

A1	A1	A2	A3	B1	B1	
B2	B3	C1	C1	C2	C3	
i-Gen Screw 1mm Cuff / 4ea		i-Gen Screw 2mm Cuff / 4ea		i-Gen Screw 3mm Cuff / 4ea		Hand Driver Short for i-Gen screw delivery
Cover Screw / 6ea		Healing Abutment 2.5mm / 3ea		Healing Abutment 3.5mm / 3ea		

Full Package includes : 12 i-Gen membranes / 12 i-Gen Screws (1mm, 2mm, 3mm cuff x 4each) / 6 Cover Screws / 6 Healing Abutments (2.5, 3.5mm height) / 1 Hand Driver (Hex 1.6)

Trial Package

- Kindly note that i-Gen membrane should go with proper i-gen screw type.
- Please choose proper i-gen membrane according to i-gen screw type.

Type	Ref.C
M2.0	IGTP20
M1.8	IGTP18
M1.6	IGTP16
M1.4	IGTP14

- * Individual items can be ordered additionally to fill up the package.
- * Additional types of i-Gen Screw for other implant system are available upon request. Ask to your sales reps.

Trial Package

A : 1 wall defect B : 2 wall defect C : 3 wall defect

A1	A2	B1	B2	C1	C2	Hand Driver Short for i-Gen screw delivery
i-Gen Screw 1mm Cuff / 2ea		i-Gen Screw 2mm Cuff / 2ea		i-Gen Screw 3mm Cuff / 2ea		
Cover Screw / 2ea		Healing Abutment 2.5mm / 2ea		Healing Abutment 3.5mm / 2ea		

Trial Package includes : 6 i-Gen membranes / 6 i-Gen Screws (1mm x 2ea, 2mm x 2ea, 3mm x 2ea) / 2 Cover Screws / 4 Healing Abutments (2.5, 3.5mm height) / 1 Hand Driver (Hex 1.6)

➔ i-Gen membrane

1. How to use

Ideal + Regeneration membrane ⇒ i-Gen membrane

1. Place an implant into the recipient site.
2. Connect a i-Gen screws to the implant and bone grafting. Usually 1 mm cuff height is good enough for vertical space, but 2 or 3 mm cuff height of i-Gen Screw can be chosen according to situation. The amount of graft material should be enough to fill the space between i-Gen membrane and the fixture.
3. Selection of i-Gen membrane and placement. According to the size and shape of bone defect, an i-Gen membrane can be chosen from 9 different shapes. Match the hole of i-Gen membrane with the screw hole of i-Gen screws.
4. Fixate i-Gen membrane with a i-Gen Screw. Choose a i-Gen Cover Screw or Flat Healing Abutment to fix i-Gen membrane depending on the need of one or two stage surgery. Tight adaptation of soft tissue flap is recommended.

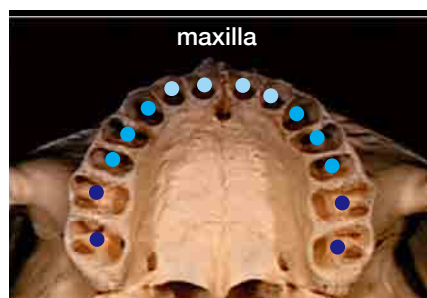


(Proper soft tissue management is the key to successful regeneration! If the i-Gen membrane is denuded following wound dehiscence, it is advisable to remove it immediately)

2. Which i-Gen?

i-Gen membrane has 9 different sizes and shapes.

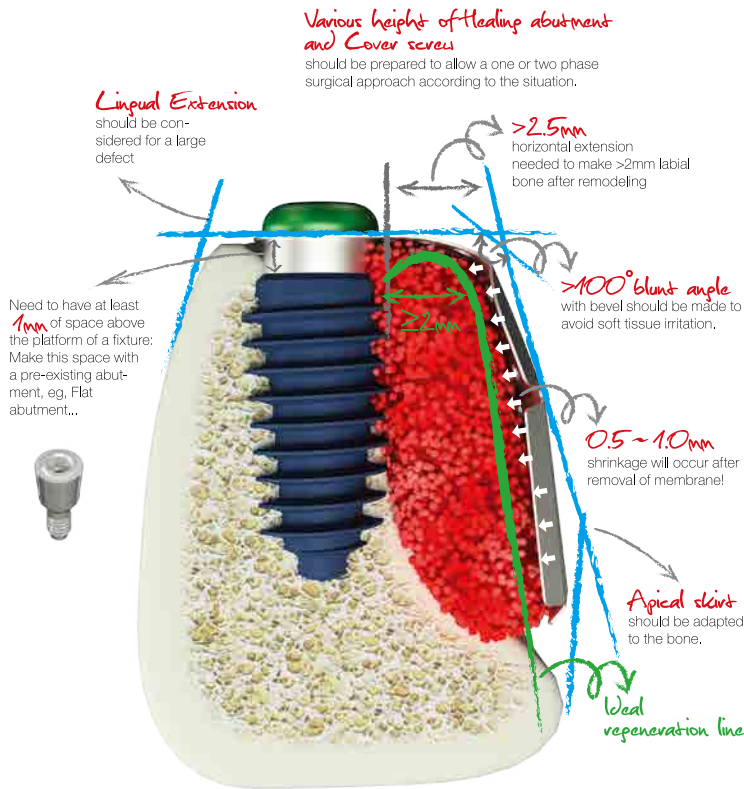
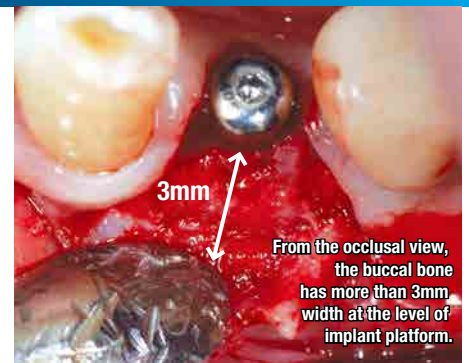
As seen on the figure left, alveolar bone has different widths according to locations. It can be divided into three categories; Anterior (Sky blue dots), Premolar (Blue dots) and Molar (Dark blue dots). For Anteriors, 'narrow' membranes can be used, which has 4.5mm buccal horizontal extension from the center of fixture. For Premolars, 'Regular' membranes which has 5.5mm buccal extension, can be selected. The molar area usually needs wide membrane (6.5mm from fixture center), especially at the immediate placement case with wall defects. Type A and B membranes are only to cover single wall defects. Type C has a lingual extension to cover lingual wall defect.





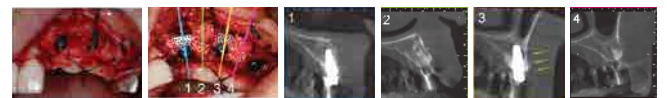
AnyRidge is Perfect for Ridge augmentation with i-Gen

Ideal regeneration starts from the 'Science for space management'.
i-Gen & AnyRidge can sure the ideal regeneration.



Go beyond the limits of Collagen Membrane.

Any location, Any Size & Any Situation for GBR, i-Gen ensures regenerating minimum **2.5mm buccal bone**.
The regenerating of more than 2.5mm of buccal bone to minimize bone loss after GBR and maximize the life of implant.



Pre-Shaped Design

To avoid the inconvenience of modeling titanium membrane in the clinic, i-Gen has 12 pre-formed sizes in varying shapes.



Superior initial stability makes a perfect match for GBR using i-Gen membrane

AnyRidge can be placed in any ridge thanks to its knife thread. AnyRidge Knife thread has perfect stability in Regenerated bone



Have you made the PARADIGM SHIFT yet? Do it the AnyRidge Way

Excellent primary stability with Knifethread®

- For smooth insertion & stronger primary stability
- No cutting edge for minimal invasion
- Perfect results with any bone condition

Excellent secondary stability with Xpeed®

- Faster & stronger osseointegration
- Surface technology incorporating Ca²⁺ ions on S-L-A treated surface
- 100% acid-residue-free surface



➔ Clinical Cases 1 : Extremely thin mandibular posterior

- Courtesy of Dr. Kwang-Bum Park

Fig 1. This 65 year-old male patient visited with a chief complaint of discomfort on #24 during chewing. On the panoramic view, large bone defect was observed.



Fig 2. The tooth was extracted and socket was degranulated SmarThoroughly. A 4.5mm AnyRidge Fixture was placed at the center of socket with excellent initial stability.

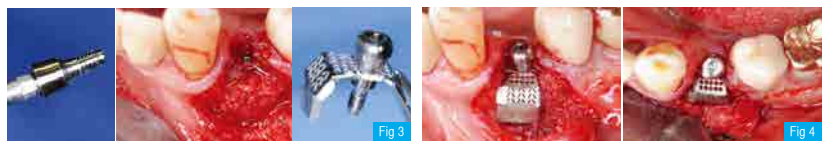


Fig 3. An i-Gen Screw, 1mm cuff height, was connected with the fixture. A 1.6mm Hex Driver is needed to place a i-Gen Screw, which was included in the kit. Mega-Oss allograft was grafted into the defect.



Fig 4. The combined image of i-Gen membrane, a i-Gen Screw and a Healing Abutment. A Healing Abutment was connected on the i-Gen Screw to fix the i-Gen for one stage surgical approach. Watch the horizontal extension of i-Gen.

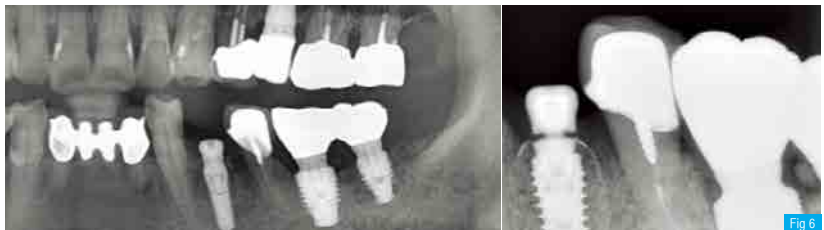


Fig 5. Simple suture was made to adapt the buccal flap against the Healing Abutment.



Fig 6. Postoperative panoramic and intraoral radiograph.



Fig 7. 3 months after surgery. Gingival healing was excellent and intraoral radiograph showed considerable increase in radiopacity.

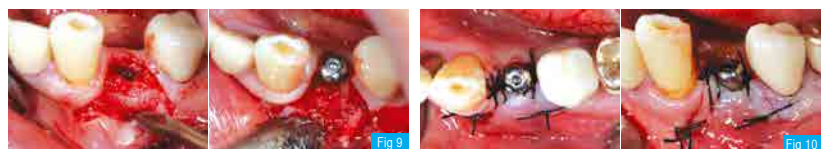


Fig 8. Usually flap opening is not necessary to remove i-Gen membrane, but in this case the flap was elevated to check the bone regeneration. The i-Gen membrane was maintained very stable in the tissue, and it was easily removed with a hemostat.

Fig 9. The defect was filled with healthy regenerated bone. From the occlusal view, the buccal bone had more than 3mm width at the level of implant platform.

Fig 10. Flap was closed with simple suture.

Alveolar Ridge Reconstruction with Titanium Meshes and Simultaneous Implant Placement : A Retrospective, Multicenter Clinical Study

- Zita Gomes R1, Paraud Freixas A2, Han CH3, Bechara S4, Tawil I5.
- Eur J Oral Implantol. 2017;10(4):415-424

Objective. To evaluate horizontal bone gain and implant survival and complication rates in patients treated with titanium meshes placed simultaneously with dental implants and fixed over them. **Methods.** Twenty-five patients treated with 40 implants and simultaneous guided bone regeneration with titanium meshes (i-Gen®, MegaGen, Gyeongbuk, Republic of Korea) were selected for inclusion in the present retrospective multicenter study. Primary outcomes were horizontal bone gain and implant survival; secondary outcomes were biological and prosthetic complications. **Results.** After the removal of titanium meshes, the CBCT evaluation revealed a mean horizontal bone gain of 3.67 mm (± 0.89). The most frequent complications were mild postoperative edema (12/25 patients: 48%) and discomfort after surgery (10/25 patients: 40%); these complications were resolved within one week. Titanium mesh exposure occurred in 6 patients (6/25:24%); one of these suffered partial loss of the graft and another experienced complete graft loss and implant failure. An implant survival rate of 97.5% (implant-based) and a peri-implant marginal bone loss of 0.43mm (± 0.15) were recorded after 1 year. **Conclusions.** The horizontal ridge reconstruction with titanium meshes placed simultaneously with dental implants achieved predictable satisfactory results. Prospective randomized controlled trials on a larger sample of patients are required to validate these positive outcomes.

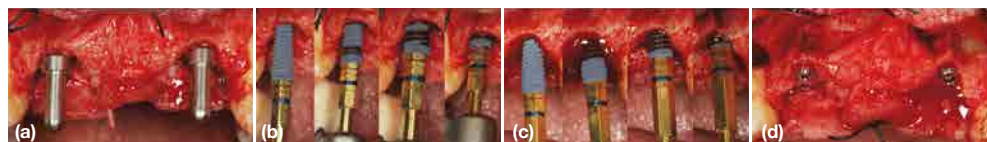


Fig 1. Preparation of the surgical sites and placement of the implants (AnyRidge, MegaGen, Gyeongbuk, Republic of Korea). (a) The implant sites have been prepared; (b) placement of the first implant in the position of the right lateral incisor; (c) placement of the second implant in the position of the left lateral incisor; (d) the implants in situ.

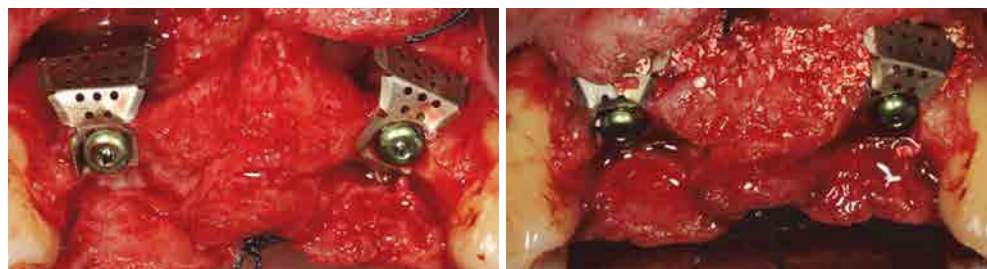


Fig 2. The titanium meshes are connected to the implants and screwed on with the aid of a connecting screw



Fig 3. Prosthetic rehabilitations. (a) The provisional restoration in situ, two weeks after the first impressions; (b) three months later, the precision of final structure is tested clinically; (c) the application of the definitive metal-ceramic FPP; (d) the final FPP at the final control.

II. LT6 Membrane

All the advantages of i-Gen, yet resorbable, So no secondary surgery

- Creates space equal to non-resorbable membranes
- No wrinkling of the membrane after hydration and bone graft

Simple mounting

LT6 i-Gen can be stably mounted on i-Gen Screw without using cover screw due to elasticity of material

Lingual Extension
should be considered for a large defect

>2.5mm
horizontal extension
needed to make >2mm labial bone after remodeling

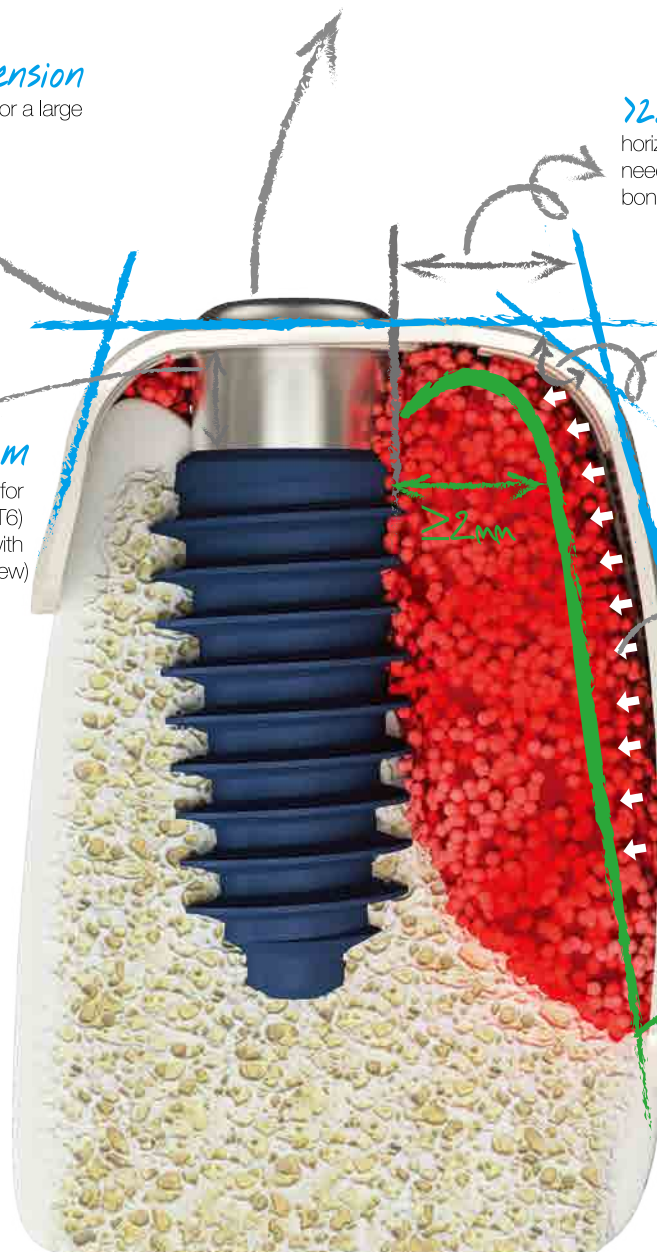
2mm~4mm
3 different cuff heights for i-GEN Screw(LT6)
(Compatible with existing i-GEN Screw)

>100° blunt angle
with bevel should be made to avoid soft tissue irritation

Strong elastic modulus
Keeps bone from spreading

Apical skirt
should be adapted to the bone

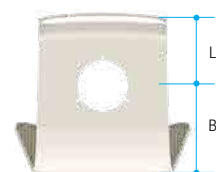
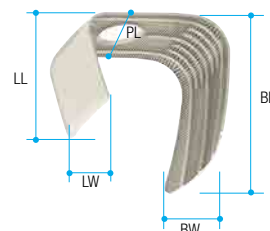
Ideal regeneration line



↔ LT6 Membrane Components

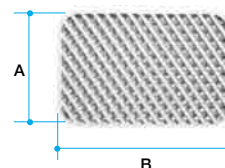
i-Gen Type

Dimension(mm)								Ref.C
PL (Proximal Length)	BW (Buccal width)	BL (Buccal Length)	BD (Buccal Distance)	LD (Lingual Distance)	LW (Lingual width)	LL (Lingual Length)	Thickness (mm)	
8	11	12	4	3	8	8	0.15	LT6IG



Flat Type

Thickness(mm)	Size (A*B, mm)	Ref.C
0.15	15*20	FE15-1520
	20*30	FE15-2030
	30*40	FE15-3040
0.2	15*20	FF20-1520
	20*30	FF20-2030
	30*40	FF20-3040
0.3	15*20	FF30-1520
	20*30	FF30-2030
	30*40	FF30-3040



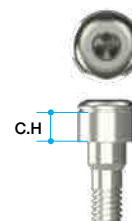
i-Gen Screw

- M2.0
- MegaGen (AnyOne, EZ Plus(R&W) & MegaFix)
 - Straumann (Standard & Standard Plus)
 - Nobel Biocare (Nobel Replace Tapered Groovy)
 - Dentium (Superline)
 - Dio (Steady, SM, IFI)
 - Neobiotech (IS)
 - Osstem (TS IV)

- M1.8
- MegaGen (AnyRidge)
 - Dentsply-Frident (Ankylos C/X Implant)
 - Zimmer (TSV)

- M1.6
- MegaGen (AnyRidge Octa 1, EZ Plus Internal _Small)
 - Straumann (Bone Level)
 - 3i (Osseotite certain & Full Osseotite NT Certain)

Type	Cuff Height (mm)	Ref.C
M2.0	2.0	IGS2020
	3.0	IGS2030
	4.0	IGS2040
	5.0	IGS2050
	6.0	IGS2060
M1.8	2.0	IGS1820
	3.0	IGS1830
	4.0	IGS1840
	5.0	IGS1850
M1.6	6.0	IGS1860
	2.0	IGS1620
	3.0	IGS1630
	4.0	IGS1640
	5.0	IGS1650
	6.0	IGS1660



➔ LT6 Membrane

1. Innovative material & manufacturing techniques

- Polycaprolactone-based
- 3D printing manufacturing
- β phase Tricalcium Phosphate (β -TCP) integrated

PCL (FDA Approved Biodegradable Material)

- Raw material, medical grade registered with FDA, which has outstanding biocompatibility and biodegradability.
- Widely used for implantable medical devices, due to safety and stability in the body.
- Raw material manufactured at GMP facility that follows ISO and ICH Q7* guidelines.

Woodruff and Huttmacher, The return of a forgotten polymer-Polycaprolactone in the 21st century, P rog. Polym. Sci., 2010

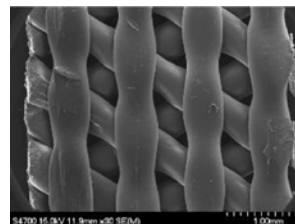
* ICH Q7 ; Good Manufacturing Practice Guide for Active Pharmaceutical Ingredients, International regulations for the production and registration of pharmaceuticals

Complex structure of blockage/ flowage made real via 3D printing

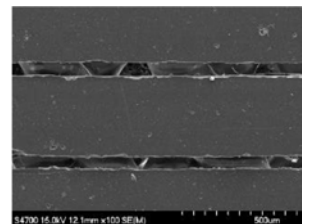
- Assured quality control and quality assurance via uniform production
- Perfectly connected pore structure, resulting in fluent flow of oxygen and nutrients after bone graft
- Accelerated bone regeneration

Dong-Woo Cho et al., Effect of pore architecture and stacking direction on mechanical properties of solid freeform fabrication-based scaffold for bone tissue engineering, *J. Biomed. Mater. Res. A, 2012*

Dong-Woo Cho et al., Stimulation of healing within a rabbit calvaria defect by a PCL/PLGA scaffold blended with TCP using solid freeform fabrication technology, *J Mater. Sci. Mater. Med., 2012*



▲ surface structure for bone regeneration



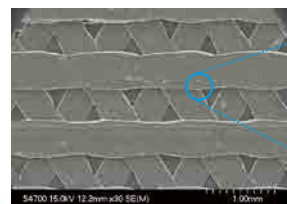
▲ surface structure for soft tissue

Membrane is sustained during bone regeneration

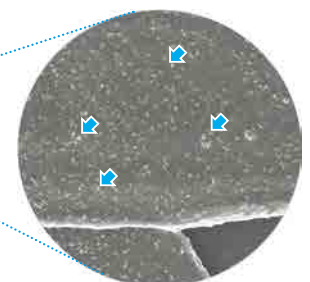
- Maintains secure position during bone regeneration
- Full performance of soft tissue blockage & bone formation.
- Excellent physical characteristics
(High strength after hydration/ Stable applications for clinical cases/Constant & even clinical results)

Outstanding bone formation with β -TCP

- Accelerated bone formation- emission of Ca^{2+} via decomposition of β -TCP
- Effective regeneration, while blocking out soft tissue

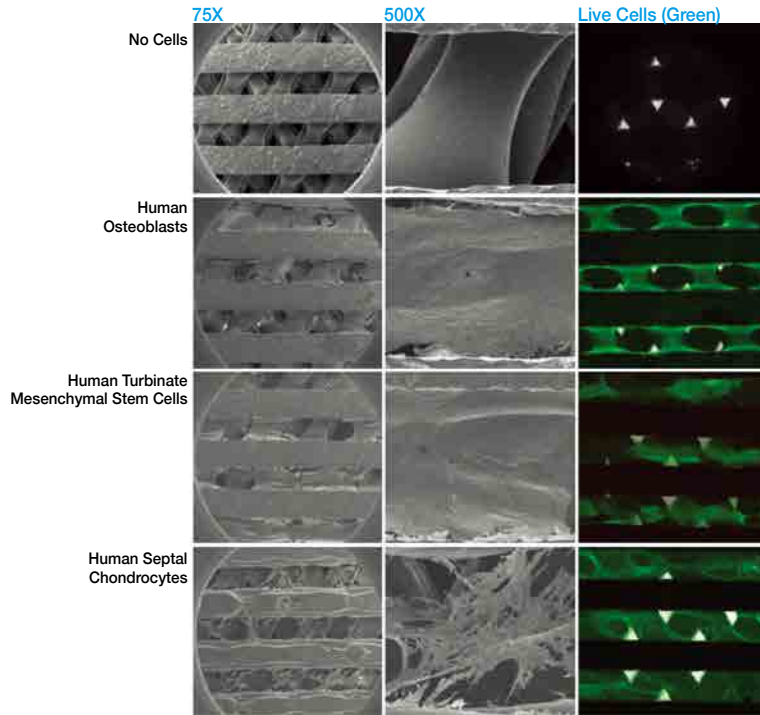


β -TCP is dispersed throughout the product
(Refer to the arrow)



In-vitro

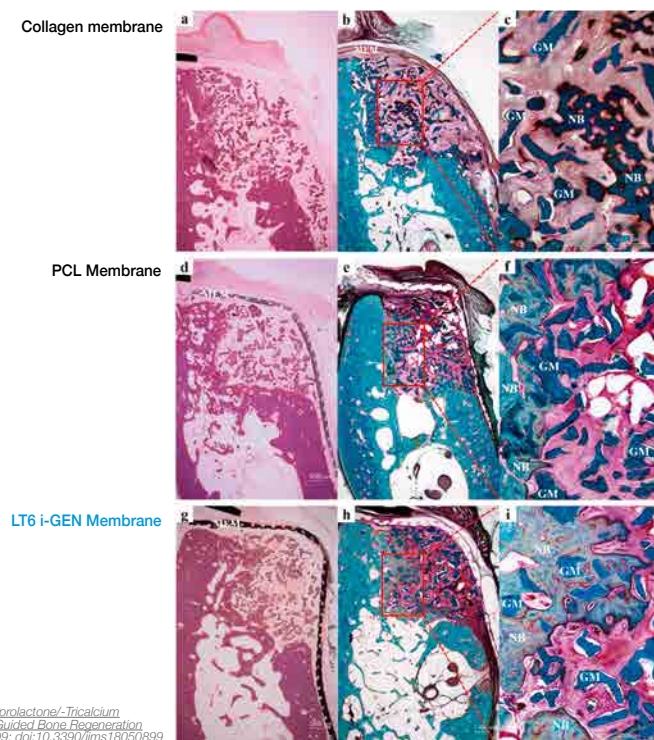
Various types of human cells, including stem cells (human turbinate mesenchymal stem cells), primary cells (human septal chondrocytes), and cell lines (human osteoblasts), were cultivated on a LT6 i-Gen membrane for 3 weeks. The results confirmed that all the cells multiplied 5 to 10-fold, plus the cell survival rate was very high.



In-vivo

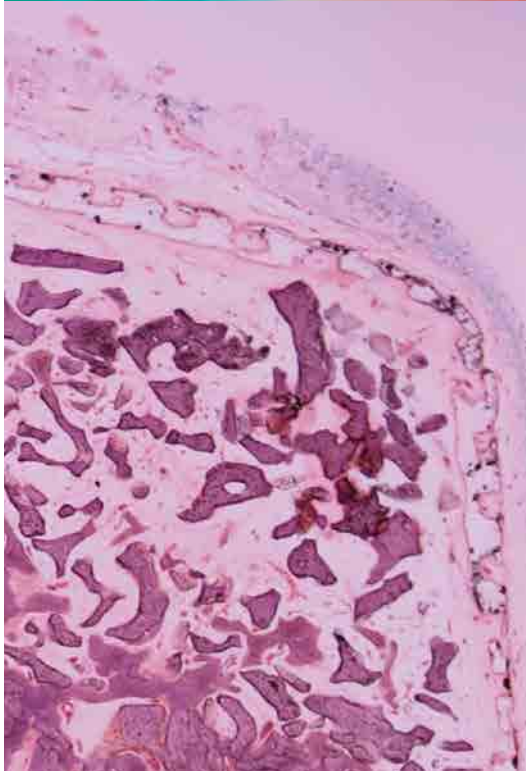
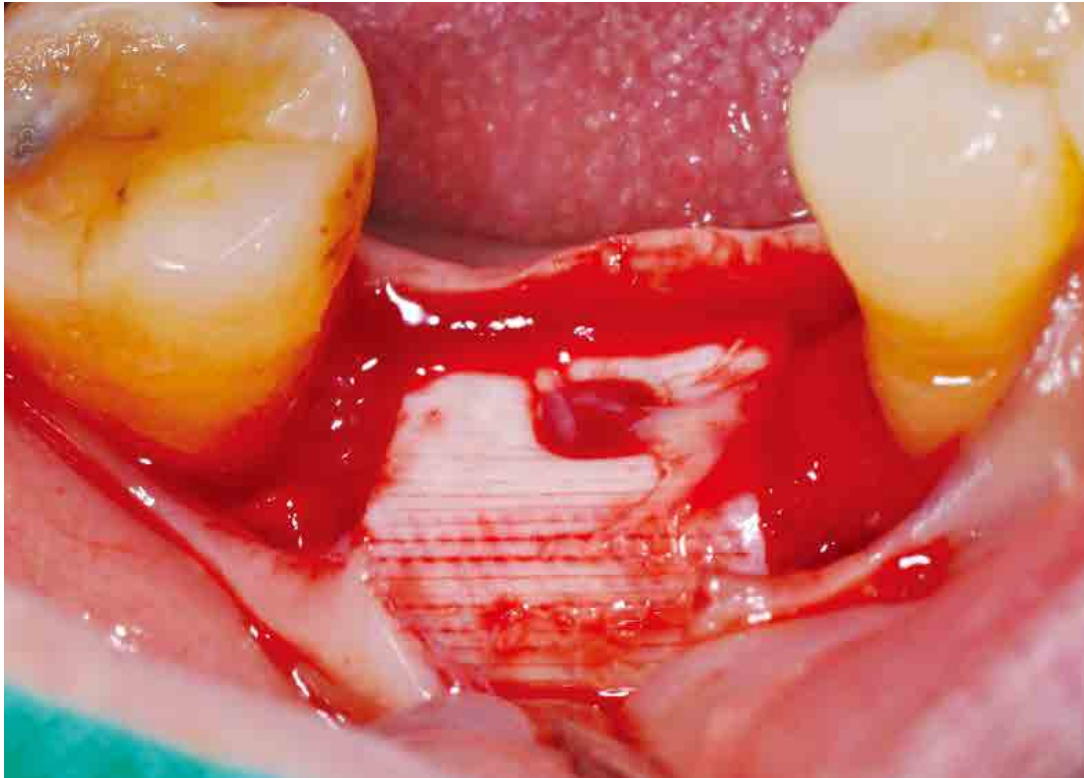
Comparison with collagen membrane (Beagle Model): 8 weeks after implantation

- Higher level of fixation of bone graft material
- Higher level of osteogenesis

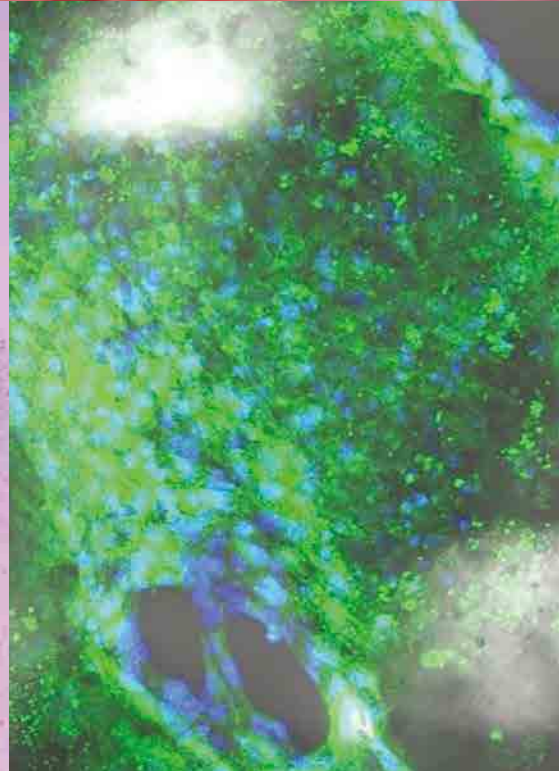


Effects of 3D-Printed Polycaprolactone/-Tricalcium Phosphate Membranes on Guided Bone Regeneration
Int. J. Mol. Sci. 2017, 18, 899; doi:10.3390/ijms18050899

Lasts for over 6 months



Outstanding maintenance and bone regeneration



Accelerated osteogenesis confirmed using ALP (Alkaline Phosphatase) test, comparison of LT6 i-GEN with collagen membranes

Membranes



Head Office & Factory
Gangnam Office

45, Secheon-ro 7-gil, Dasa-eup, Dalseong-gun, Daegu, Korea
MegaGen Tower, 607 Seolleung-ro, Gangnam-gu, Seoul, Korea

T. +82-1544-2285
T. +82-1566-2338