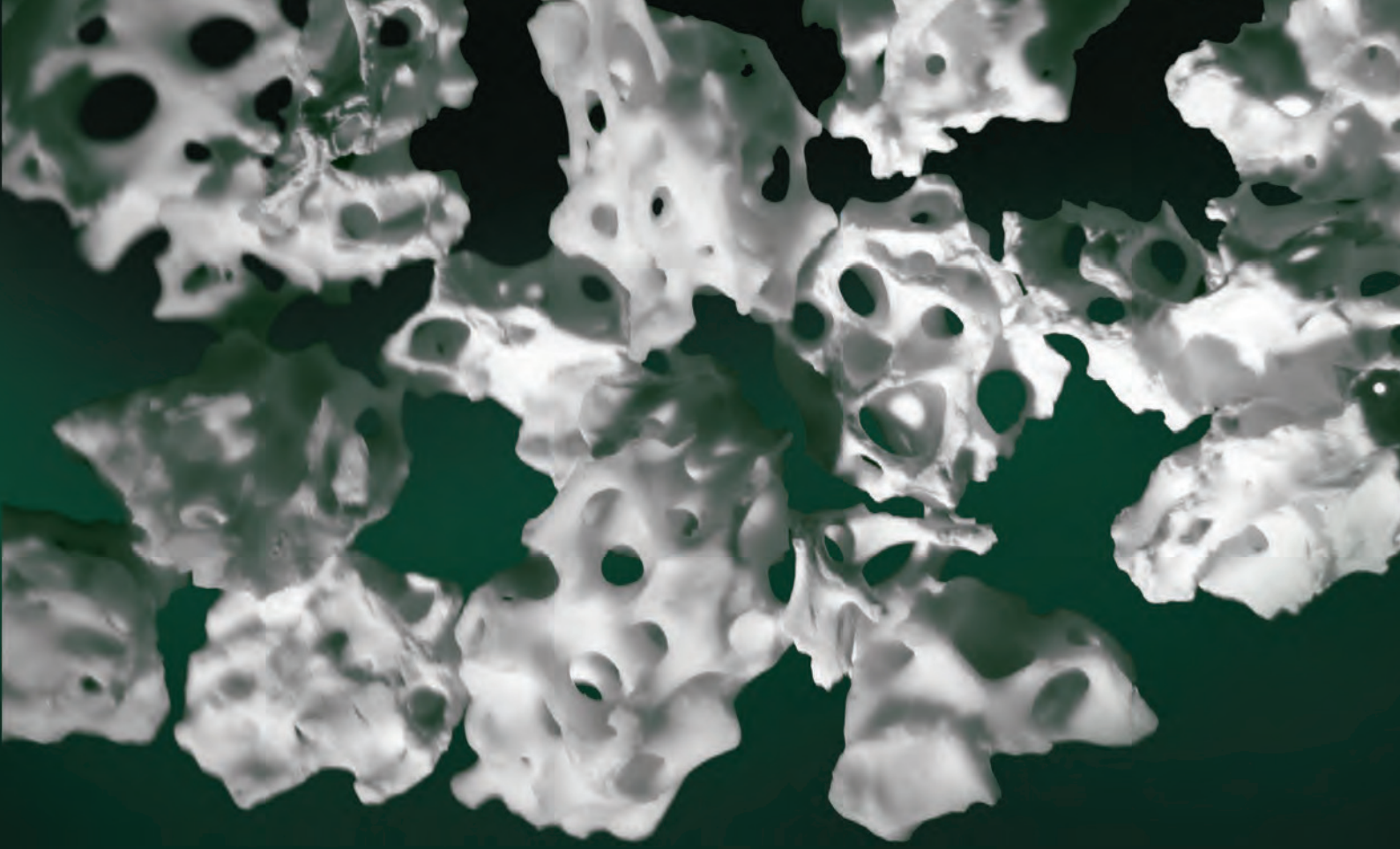


# Ti-OSS®

## CANCELLOUS SUBSTITUTE

**Leading regeneration with quality, reliability, affordability**

Manufactured with the highest quality standard moves your practice to high success rate and safety.

Chiyewon

Ti-oss®, natural bovine cancellous substitute becomes

# New GOLD STANDARD in Xenograft.

## Bone Graft

### Ti-oss®


### Ti-oss® Syringe


Ti-oss® particle is filled into the syringe form for easy handling onto the wound site. Several drops of Blood, saline, PRP at the entrance of syringe allows wetting whole Ti-oss® particles in the syringe. Unique Ti-oss® pore size makes this possible.

### Ti-oss® Block


Whole block of Ti-oss® opens new horizon to Bone grafting technique with these special fact. Average Ti-oss® pore size is more than three times of other world leading product. This advanced manufacturing technique permits rapid absorption of blood or saline into the block, allowing ingrowth of blood vessel and osteoblasts.
Stabilization of Block is easily achieved by carving with surgical blade and adaptation in the patient mouth.
Horizontal mattrix suture or PRP fixation is possible.

### Ti-oss® Guide

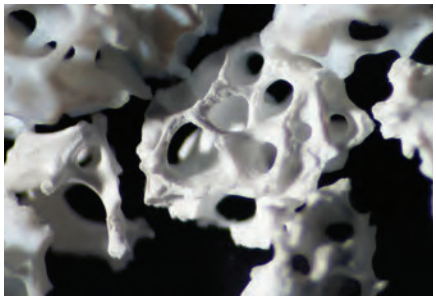

Ti-oss Guide® is an absorbable and implantable atelocollagen membrane that is intended for tissue regeneration procedures.
Ti-oss Guide® is crosslinked using 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide (EDC) for the resistance to enzymatic degradation.
Ti-oss-Guide® provides a stable barrier for 3~6 months and optimized physical property.

Our manufacturing technical level and Ti-oss® quality

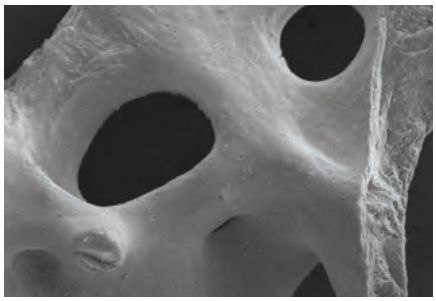
# Do not allow comparison to any products in the world.

## Multiporosity Structure

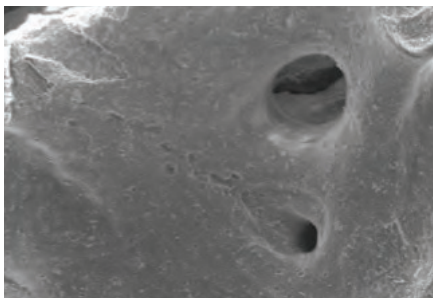
Ti-oss® is made from 100% cancellous bone without any cortical portion. Innovative pulverizing technique allows multiporous structure, maximizing blood vessel ingrowth.



## Pore size



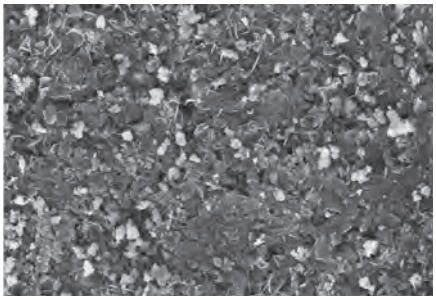
(Ti-oss® SEM image x100)



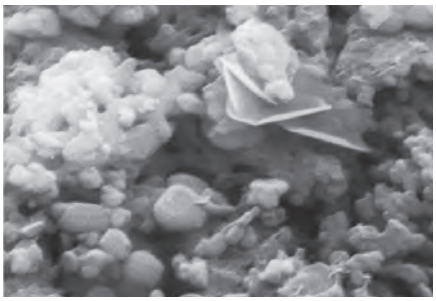
(A Co. SEM image x100)

## Octacalcium Phosphate Crystal

Pre HA structure, octacalcium phosphate crystal is found on the surface of Ti-oss®, resulting in fast bone formation.



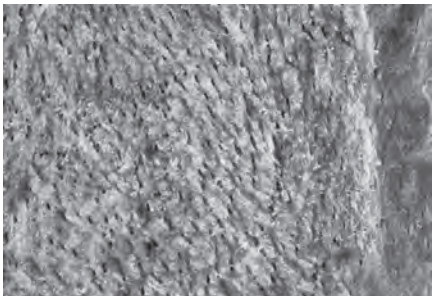
(SEM image x10,000)



(SEM image x50,000)

## Osteoconductive Surface

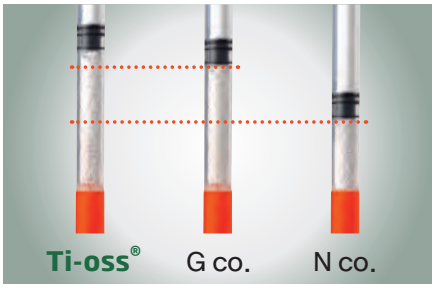
Low temperature processing technique allows ideal, natural surface topograph, the same as human bone, stimulating osteoblast activity. Vitrification phenomenon caused by high temperature process has been completely controlled.



(SEM image x3,000)

## Large Volume

Unique 100% multiporous cancellous nature offers higher quantitative mass volume per gram unit, compared to other nonporous product. This leads to less material cost.

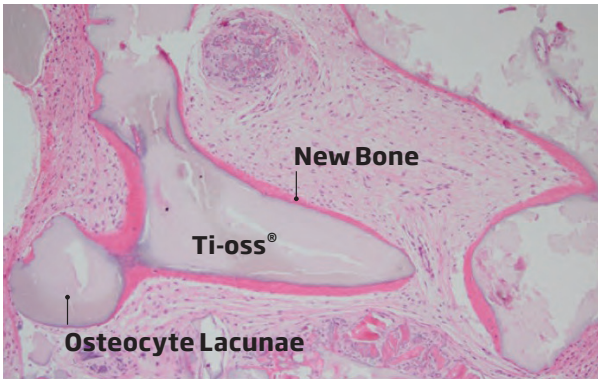



(Comparison of CC per gram)

# Human Biopsy Result

Osteoconductive nature of Ti-oss® surface was evaluated by biopsy specimens. Consistent new bone formations were noted in several different clinical cases. Reliability of Graft success, Early bone formation, Observation of Osteocyte Lacunae

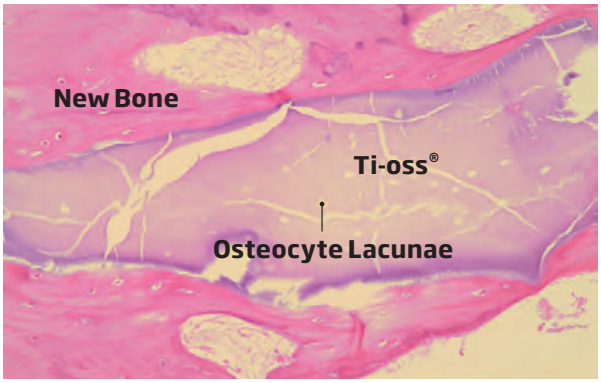
## 3 Months Biopsy Findings




Hospital : Myungin Dental
Lee, Myung Ho, D.D.S
Surgical No. : b-12-238488

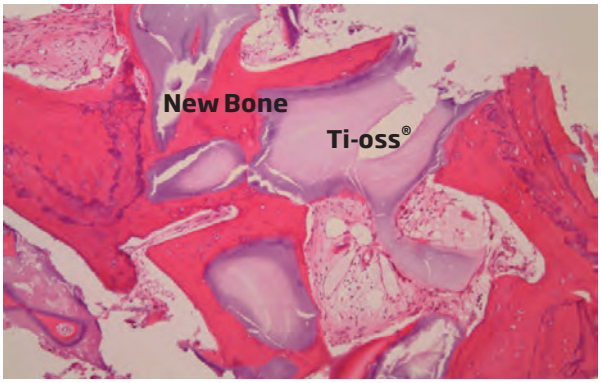
Date : 2012.11.12
Pictured by : S.A.LEE MD

## 4 Months Biopsy Result




- Research Report date; May, 2012
- Kim, Sun Young, D.D.S. Prosthodontist
- Suplant Dental Clinic Seoul, Korea

## 4 Months Biopsy




Mandibular left second molar

Ham, Byungdo, DDS, Periodontist
Seoul Korea

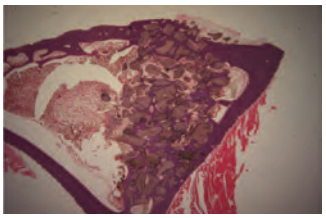
# Animal Comparison ; Multiporosity, Pore Size, Natural Topograph, Octacalcium Phosphate

Make Significant Clinical Difference due to following factors.

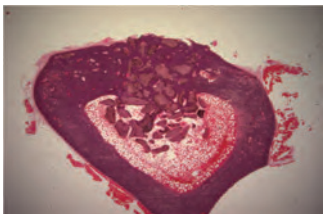
1. Angiogenesis by Porosity design.
2. Osteoblast movement by Natural Topograph
3. Fast Bone Formation by Octacalcium Phosphate

Please look at the animal data.

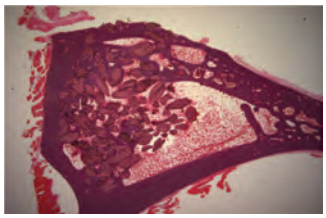
## Ti-oss®



Rabbit Tibia 12 weeks
- Ti -oss® New Bone well formed

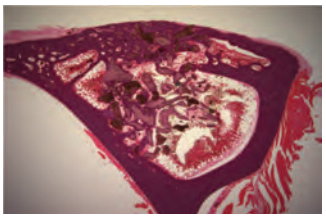


Rabbit Tibia 12 weeks
- Ti -oss® Densely formed

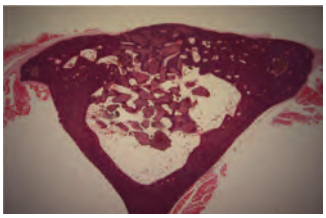


Rabbit Tibia 12 weeks
- Ti -oss® Excellent Osteoconductivity

## Competitor



Rabbit Tibia 12 weeks
- "A" Co Loosely formed Bone

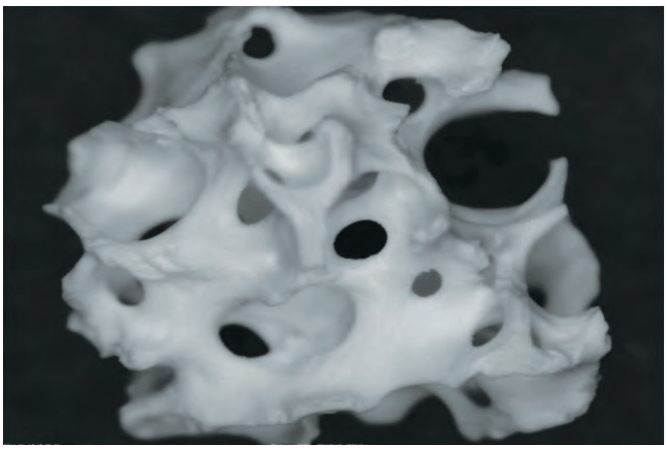


Rabbit Tibia 12 weeks
- "A" Co Loosely formed Bone

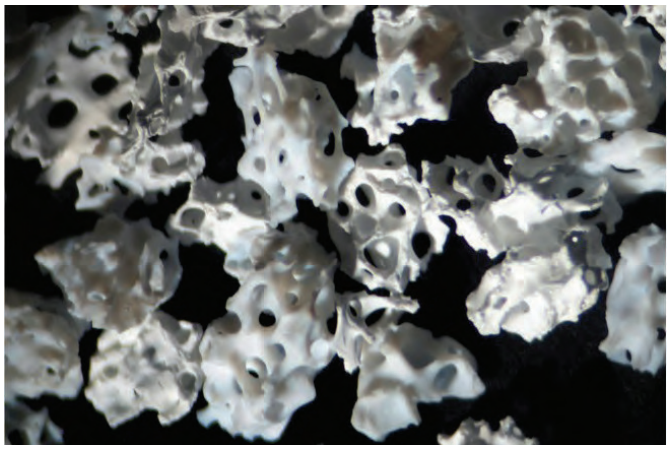
Rabbit Tibia 12 weeks
- "A" Co Loosely formed Bone

# Microscopic Comparison

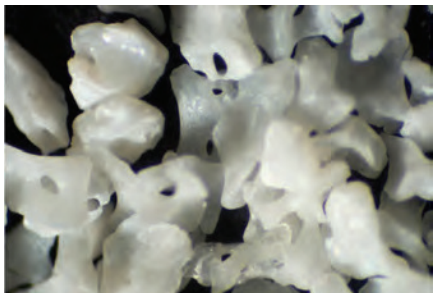
Ti-oss® multiporosity allows maximum angiogenic process, which is critical in first 2 weeks of initial bone healing stage. Osteoblast, oxygen, nutrients can not be supplied into the graft without blood vessel. Ti-oss® guarantees maximum revascularization into the graft, leading to high bone formation.



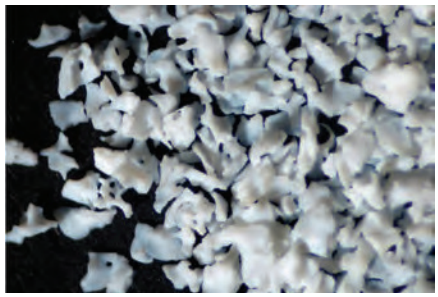
Gold Standard - Multiporosity



Uniformity of Ti -oss®



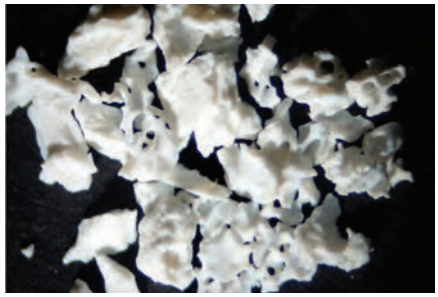
"A" Co. Nonporous Glassified Surface



"A" Co. Damaged Porosity

"A" Co. All Cortical Particles

"B" Co. Nonporous Glassified



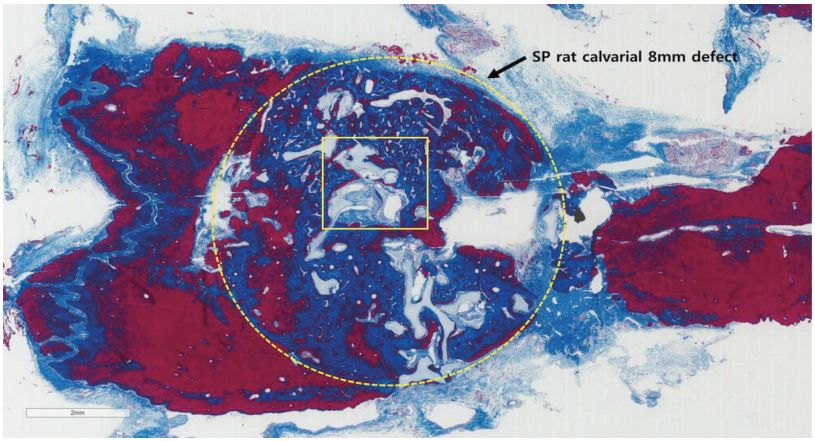
"C" Co. Cortical Particle Included

# Ti-oss® resorption by Osteoclast found on 8 weeks rat model.

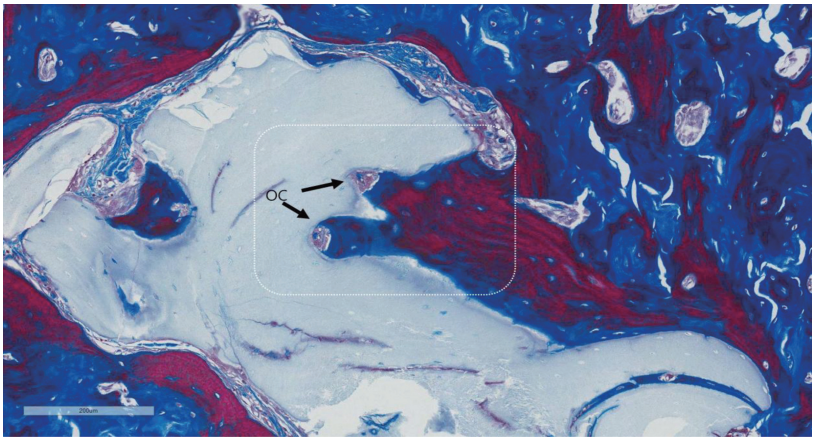
**Jun, Sangho, DDS, MS, Ph.D**
Korea University Hospital, Dental Division, Oral and maxillofacial department

**Ryu, Jaejun, DDS, MS, Ph.D**
Korea University Hospital, Dental Division, Prosthodontic department

In 8 weeks after the placement of Ti -oss® bone graft,
rat calvarial defect has been filled into the defect center.




Ti -oss® resorption by Osteoclast started 8 weeks after the placement of Ti -oss® graft onto the surgical defect.
(yellow square)



# Ti-oss®

CANCELLOUS SUBSTITUTE

## Ti-oss®


| No. | Product / Weight | Size |
|---|---|---|
| 25-0512 | Ti-oss® 0.25g/0.6cc | 0.5 - 1.2mm |
| 05-0512 | Ti-oss® 0.5g/01.2cc | 0.5 - 1.2mm |
| 10-0512 | Ti-oss® 1.0g/2.3cc | 0.5 - 1.2mm |
| 20-0512 | Ti-oss® 2.0g/4.5cc | 0.5 - 1.2mm |
| 25-1217 | Ti-oss® 0.25g/0.75cc | 1.2 - 1.7mm |
| 05-1217 | Ti-oss® 0.5g/1.5cc | 1.2 - 1.7mm |
| 10-1217 | Ti-oss® 1.0g/3.0cc | 1.2 - 1.7mm |
| 20-1217 | Ti-oss® 2.0g/6.0cc | 1.2 - 1.7mm |

| | | |
|---|---|---|
| 25-0210 | Ti-oss® 0.25g/0.44cc | 0.2 - 1.0mm |
| 05-0210 | Ti-oss® 0.5g/0.8cc | 0.2 - 1.0mm |
| 10-0210 | Ti-oss® 1.0g/1.51cc | 0.2 - 1.0mm |
| 20-0210 | Ti-oss® 2.0g/2.98cc | 0.2 - 1.0mm |

## Ti-oss® Syringe


| No. | Product / Weight | Size |
|---|---|---|
| S25-0512 | Ti-oss® 0.25g/0.6cc | 0.5 - 1.2mm |
| S05-0512 | Ti-oss® 0.5g/01.2cc | 0.5 - 1.2mm |
| S25-1217 | Ti-oss® 0.25g/0.75cc | 1.2 - 1.7mm |
| S05-1217 | Ti-oss® 0.5g/1.5cc | 1.2 - 1.7mm |

| | | |
|---|---|---|
| S25-0210 | Ti-oss® 0.25g/0.44cc | 0.2 - 1.0mm |
| S05-0210 | Ti-oss® 0.5g/0.8cc | 0.2 - 1.0mm |

## Ti-oss® Guide


| No. | Product / Weight | Size |
|---|---|---|
| DTG-10002 | Ti-oss® Guide | 15 x 30mm |

## Ti-oss® Block


| No. | Product / Weight | Size |
|---|---|---|
| BLK8812 | Ti-oss® Block | 8x8x12mm |
| BLK8825 | Ti-oss® Block | 8x8x25mm |

6F., 192, Gyeongchun-ro, Guri-si, Gyeonggi-do, Republic of Korea
Phone : 82-31-568-1809 Fax : 82-31-553-3612 Contact : manager@ti-oss.com www.ti-oss.com