Purgo Dental Biologics Solution

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Efficacy in Various Indications
based on **published research studies and clinical cases**

THE Graft, reproducible clinical outcomes!

"One hundred patients participated in the extraction socket randomized controlled clinical trial, divided into two groups. The first group received **THE Graft** (porcine cancellous graft) after extraction (Test group), the second group received bovine-derived bone graft materials (Control group). 81 biopsies were harvested for clinical and radiological histologic analysis. Both groups displayed comparable histologic bone formation. Although a wide variation of new bone formation was shown during the healing period, there was a tendency of higher new bone formation at damaged sockets that had an intact unilateral residual wall regardless of buccal or lingual side." *1), 2)*

"**THE Graft** group showed comparable results to the bovine bone graft group for hard tissue augmentation with minimal reductions in the grafted volume, both in vertical and horizontal 4 months post surgery. No complications were observed in both groups." *7)*

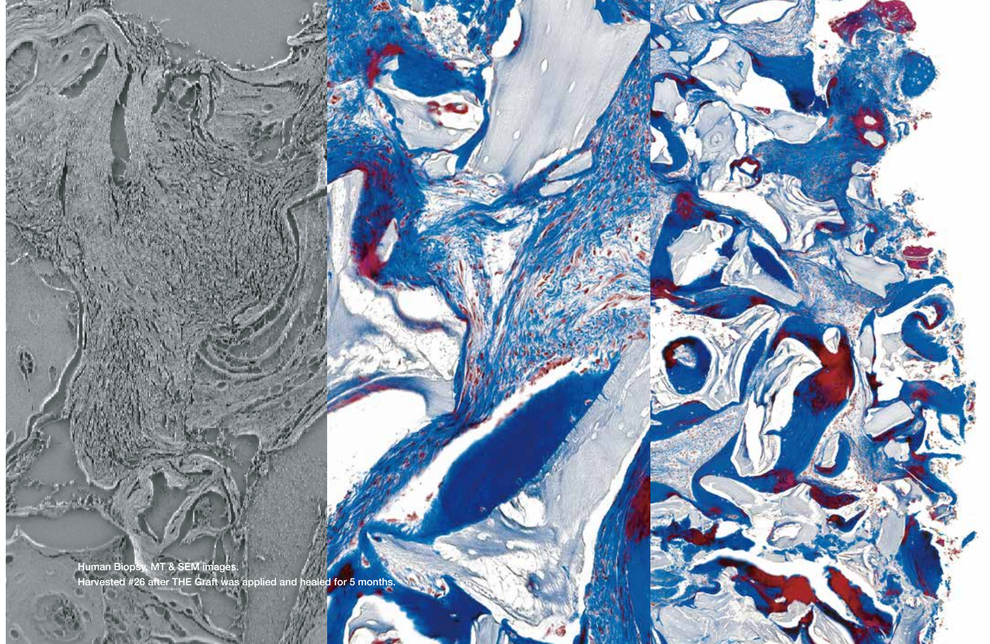
"The clinical, radiographic, and patient-reported outcomes were significantly improved when **THE Graft** was used at the one, two, three wall intrabony defects for the regenerative treatment both short- and long-term periods." *9), 10), 11), 13)*

"Applying a combined hyaluronic acid and **THE Graft** approach in deep intrabony defects provided clinically relevant clinical attachment level (CAL) gain and pocket probing depth (PPD) reductions compared to baseline values and is a new valid approach in treating intrabony defects." *12)*

"The reconstruction of the mandibular alveolar bone by performing the S-GBR technique with **THE Graft** is a promising bone regeneration strategy for edentulous patients with moderate/severe horizontal resorption in the mandibular alveolar ridge." *15)*

"GBR using **THE Graft Collagen** with a resorbable collagen membrane is an effective and favorable treatment modality for peri-implant dehiscence defects in terms of clinical and radiographic outcomes during the healing period. And also, there was no significant differences compared to the bovine-derived collagenated bone graft in clinical, radiographic and volumetric outcomes." *23), 24)*

**** To check the references, please refer to the QR codes in this leaflet.***



Human Biopsy, MT & SEM images.
Harvested #26 after THE Graft was applied and healed for 5 months.

SCIENTIFIC & CLINICAL EVIDENCES

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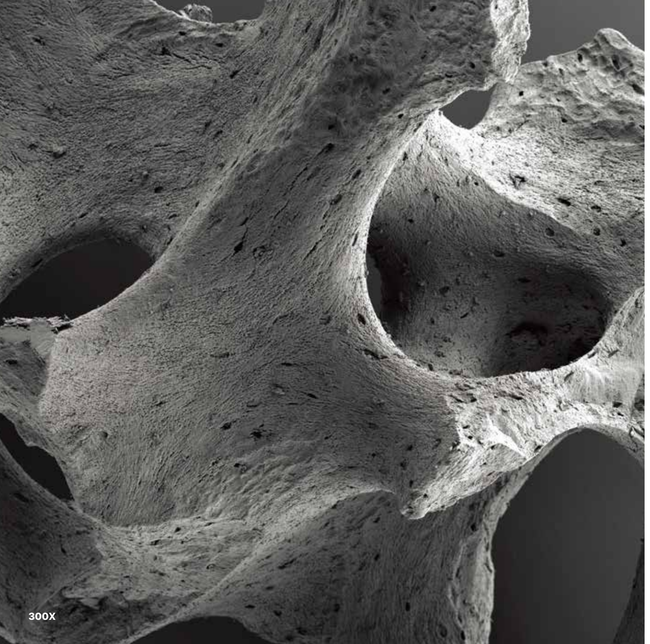

WHY
THE Graft &
THE Graft Collagen?

Porosity of Scaffold

Porosity

Natural human bone is highly porous with a characteristic distribution of pore sizes. These pores have different sizes (e.g., nano, micro, macro), and they provide surface area onto which proteins and cells can be adsorbed and adhered to. In addition, the interconnectivity of these pores facilitates introduction of mesenchymal cells, osteogenic agents and vasculature into the pores.

An ideal bone graft material should have characteristics similar to those of human bone. When THE Graft particulates are dropped into a beaker full of water, the particulates fall down to the bottom as the air bubbles trapped inside each particulate escape and rise to the top (Porosity video), showing that THE Graft is not only highly porous but also has porosity that is highly interconnected. Bone graft materials lacking such porosity will float on the surface of water as the air inside each particulate remain trapped.

Wettability

Porosity of bone graft material is important for another reason: wettability. The more porous bone graft material is, the higher its surface energy is. Because the surface energy is proportional to the wettability of the biomaterial, porosity is an important factor that facilitates absorbance of blood and attraction of proteins and growth factors needed for new bone regeneration. As shown in the video (Wettability video), well-balanced porosity of THE Graft leads to absorbance of large amount of blood in shorter amount of time compared to other competitors. This hydrophilic characteristic of THE Graft, due to not only the interconnected porosity but also the minimal presence of impurities like fat, facilitates angiogenesis and new bone formation.

Feel the Clinical Freedom on Science and Safety

Ridge Preservation

1) LEE, Jung-Seok; CHA, Jae-Kook; KIM, Chang-Sung. Alveolar ridge regeneration of damaged extraction sockets using deproteinized porcine versus bovine bone minerals: A randomized clinical trial. Clinical implant dentistry and related research, 2018, 20.5: 729-737.

2) KOO, Tae-Hwan, et al. Histologic analysis following grafting of damaged extraction sockets using eproteinized bovine or porcine bone mineral: A randomized clinical trial. Clinical Oral Implants Research, 2020, 31.1: 93-102.

3) Eun-Sik Park, Jeoung-A Yu, Seong-Ho Choi, Dong-Woon Lee. Ridge preservation using porcine bone mineral and cross-linked collagen membrane in damaged socket: a case report. THE JOURNAL OF KOREAN ACADEMY OF OSSEONTEGRATION 2017;9(2):1-6. (Kor)

4) SUN, Dong-Joo; LIM, Hyun-Chang; LEE, Dong-Woon. Alveolar ridge preservation using an open membrane approach for sockets with bone deficiency: A randomized controlled clinical trial. Clinical implant dentistry and related research, 2019, 21.1: 175-182.

5) EUN-SIK PARK, D. D. S.; JEONG-CHEOL PARK, D. D. S.; SEONG-HO CHOI, D. D. S. Histologic Analysis of Ridge Preservation Using Deproteinized Porcine Bone: A Retrospective Human Study. 2021.

6) LEE, Jae-Hong; KIM, Yeon-Tae; JEONG, Seong-Nyum. Alveolar ridge preservation of damaged or periodontally compromised extraction sockets with bovine-and porcine-derived block bone substitutes: A retrospective case–control study. Clinical Implant Dentistry and Related Research, 2023.

Two, three-wall intrabony defect

13) KIM, Yeon-Tae; JEONG, Seong-Nyum; LEE, Jae-Hong. Effectiveness of porcine-derived xenograft with enamel matrix derivative for periodontal regenerative treatment of intrabony defects associated with a fixed dental prosthesis: a 2-year follow-up retrospective study. Journal of Periodontal & Implant Science, 2021, 51.3: 179.

Furcation

14) LEE, Jae-Hong; HAN, Ji-Hoo; JEONG, Seong-Nyum. Porcine-derived soft block bone substitutes for the treatment of severe class II furcation-involved mandibular molars: a prospective controlled follow-up study. Journal of Periodontal & Implant Science, 2023, 53.

Vertical ridge augmentation

15) AGOP-FORNA, Doriana, et al. Postoperative Study of Bone Gain in Mandibular Alveolar Bone Reconstructed with Screw-Guided Bone Regeneration Technique and Porcine -Derived Xenograft in 42 Edentulous Patient Candidates for Implant-Prosthetic Therapy. Applied Sciences, 2021, 11.21: 9826.

16) SUN, Dong-Joo, et al. Clinical Evaluation of Vertical Ridge Augmentation Using Titanium Reinforced PTFE membrane. Journal of implantology and applied sciences, 2018, 22.1: 2-11.

17) LEE, Jung-Seok, et al. Vertical ridge augmentation feasibility using unfixed collagen membranes and particulate bone substitutes: A 1-to 7-year retrospective single-cohort observational study. Clinical Implant Dentistry and Related Research, 2022, 24.3: 372-381.

18) Ji, Jung-Gu, et al. Clinical, Radiographic, and Histomorphometric Evaluation of a Vertical Ridge Augmentation Procedure Using a Titanium-Reinforced Microporous Expanded Polytetrafluoroethylene Membrane: A Prospective Case Series with 1-Year Follow-Up. Materials, 2021, 14.14: 3828.

Maxillary sinus

7) LEE, Jung-Seok, et al. Randomized clinical trial of maxillary sinus grafting using deproteinized porcine and bovine bone mineral. Clinical implant dentistry and related research, 2017, 19.1: 140-150.

8) Seungmin Kim, Jae-Suk Jung, Ui-Won Jung, Seong-ho Choi, Jung-Seok Lee. Histological Evaluation of Maxillary Sinus Lift and Ridge Preservation with Deproteinized Porcine Bone Mineral (DPBM): Case Report. Implantology 2017; 21(1): 24-32.

One-wall intrabony defect

9) LEE, Jae-Hong; KIM, Do-Hyung; JEONG, Seong-Nyum. Adjunctive use of enamel matrix derivatives to porcine-derived xenograft for the treatment of one-wall intrabony defects: Two-year longitudinal results of a randomized controlled clinical trial. Journal of Periodontology, 2020, 91.7: 880-889.

10) LEE, Jae-Hong; JEONG, Seong-Nyum. Long-term stability of adjunctive use of enamel matrix protein derivative on porcine-derived xenograft for the treatment of one-wall intrabony defects: A 4-year extended follow-up of a randomized controlled trial. Journal of periodontology, 2022, 93.2: 231-238.

One to three-wall intrabony defect

11) Bo-Ram Nam, Seong-Nyum Jeong, Jae-Hong Lee, Periodontal regenerative treatment with connective tissue grafts in deep intrabony defect and gingival recession in the maxillary canine: a case report with 5-year follow-up. Oral Biol Res 2021;45(4):1-8

12) BOZIC, Darko, et al. Treatment of Intrabony Defects with a Combination of Hyaluronic Acid and Deproteinized Porcine Bone Mineral. Materials, 2021, 14.22: 6795.

Maxillary esthetic zone

19) LEE, Dong-Woon, et al. Maxillary tuberosity connective tissue graft for restoration of gingival depression in the anterior implant region. Journal of the Korean Academy of Esthetic Dentistry, 2021, 30.2: 102-111.

20) LEE, Jae-Hong; JUNG, Eun-Hee; JEONG, Seong-Nyum. Profilometric, volumetric, and esthetic analysis of guided bone regeneration with L-shaped collagenated bone substitute and connective tissue graft in the maxillary esthetic zone: A case series with 1-year observational study. Clinical Implant Dentistry and Related Research, 2022, 24.5: 655-663.

Peri-implant dehiscence defect

21) KIM, Do-Hyung; JEONG, Seong-Nyum; LEE, Jae-Hong. Adjunctive use of Gel-type Desiccating Agent for Regenerative Surgical Treatment of Peri-implantitis in Patients with Inaccessible Implant Surface: A Case Report. Journal of implantology and applied sciences, 2020, 24.3: 117-126.

22) Min-Woo Baek, Jeoung-A Yu, Seong-Ho Choi, Dong-Woon Lee. Regenerative procedure using rotary titanium brush for surface decontamination of peri-implantitis: 3 cases with a 2-year follow-up. J Dent Rehabil Appl Sci 2021;37(4):259-07

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