

Frequently asked questions

Bioactive Bone *Bovine* (Xenograft)

Alpha-Bio's Graft Bioactive Bone is a private label of Alpha Bio Tec. company, carefully chosen by R&D teams and implantologists' focus groups.

The cooperation between Alpha-Bio Tec. and leading Biomaterials manufacturers resulted in the creation of a quality product backed by dozens of international clinical trials.

1 What is a bone grafting / augmentation?

The aim of augmentation is to add bone volume required for implant placement by grafting bone during surgical procedure.

Both are surgical procedures that place bone substitute used for the creation of a new bone in defect areas.

2 What are the materials used in bone grafting?

- a **Autograft:** A bone material harvested from the patient's own body.
- b **Allograft:** A bone graft material taken from human sources (living organ donor or cadaver).
- c **Xenograft:** A bone material made from a biological source, most commonly bovine (cow), porcine (pig), equine (horse).
- d **Alloplast:** A bone graft material of a synthetic origin, such as Tri Calcium Phosphate (TCP).

The Bioactive Bone belongs to the Xenograft family [6,7].



Bioactive Bone is distributed by: Alpha-Bio Tec. Ltd

www.alpha-bio.net



3

What is Osteoconduction or Osteoinduction?

- **Osteoconduction** Osteoconduction occurs when the bone graft material serves as a scaffold for new bone growth. Osteoblasts from the margin of the defect filled with grafting material utilize the bone graft material as a framework upon which to spread and generate new bone [4].
- **Osteoinduction** Osteoinduction is the process by which osteogenesis is induced. It is a phenomenon regularly seen in any type of bone healing process. Osteoinduction implies the recruitment of immature cells and the stimulation of these cells to develop into preosteoblast [5].

The Bioactive bone enhances conductivity due to its immersion with Poly-lactic+Poly-ε-caprolactone known material in the industry of 3D matrix of introducing stem cells into wounded tissue [7,8].

4

What is passive bone graft?

Grafting material serving as a scaffold and osteoconductive material, in a process which enables the body to build new bone in defect areas. The scaffold provides an efficient structure, allowing cells to attach and build new bone. Xenograft, Allograft and Synthetic graft are examples of passive bone graft.

5

Why do we call our bone Bioactive?

Alpha-Bio's Graft Bioactive Bone Xenograft is immersed in a unique composition of polymer and cell nutrients that enable the material to enhance conductive qualities [6,7,8].

6

How does granules pores affect bone regeneration?

Porosity is defined as the percentage of void space in each particle's architecture and it is a morphological property independent of the material [4] parameter that allows growth of capillaries in regenerating site; this is an obligatory event in the cascade of new bone regeneration.



Bioactive Bone is distributed by: Alpha-Bio Tec. Ltd

www.alpha-bio.net



7

What are the differences when using small vs. large granules?

In general, small granules are recommended for small defects, while large granules are recommended for large ones (e.g.: Sinus lift). In addition, a given clinical situation may deviate from this guideline ^[2]. The Bioactive Bone is available in small (0.25-1.0 mm) and large (1.0-2.0 mm) granules sizes, provides the user with a varied clinical solution.

8

Is it recommended to soak the Xenograft with patient blood or saline?

To effectively manage and handle the material, it is recommended to immerse the Bioactive Bone in patient blood or with a few drops of cold saline.

9

Is it possible to mix the Bioactive Bone with substitutes?

The Bioactive Bone graft alone can supply excellent regenerative results. It is not recommended to mix it with other Xenograft or Synthetic bone substitutes.

10

What is the Bioactive Bone source?

The Bioactive Bone is made from bovine source. The bovine origin is **free** from **Bovine spongiform encephalopathy (BSE)**, also known as mad cow disease.

11

What type of sterilization is the Bioactive Bone exposed to?

The Bioactive Bone is sterilized by Beta-rays to achieve correct safety levels.

12

Can the Bioactive Bone be sterilized for reuse?

No, it cannot: The Bioactive Bone is intended for single use only.



Bioactive Bone is distributed by: Alpha-Bio Tec. Ltd

www.alpha-bio.net

 **swiss made**

 **ALPHA BIO'S
GRAFT**

13 In which procedures may the Bioactive Bone be used?

The Bioactive Bone can be used in various kinds of augmentation procedures and is not limited to a specific grafting procedure [7].

14 Is there difference in resorption time between small and big particles?

In the case of Xenograft, the answer is no.

15 What makes the Bioactive Bone unique in comparison to its competitors?

The Swiss-made Bioactive Bone is based on a BSE Free bovine source, containing enrichment materials that enhance its conductive qualities [6,7].

Literature:

1. Advances in Porous Biomaterials for Dental and Orthopaedic Applications, Meenakshi Mour, Debarun Das, Thomas Winkler, Elisa Hoening, Gabriela Mielke, Michael M. Morlock and Arndt F. Schilling *Materials* 2010, 3, 2947-2974.
2. Sinus floor augmentation using large (1-2 mm) or small (0.25-1 mm) bovine bone mineral particles: a prospective, intra-individual controlled clinical, micro-computerized tomography and histomorphometric study. Chackartchi T¹ *Oral Implants Res.* 2011 ;22(5):473-80.
3. Effect of two different healing times on the mineralization of newly formed bone using a bovine bone substitute in sinus floor augmentation: a randomized, controlled, clinical and histological investigation. Kohal RJ, Gubik S, Strohl C, Stampf S, Bächle M, Hurrle AA, Patzelt SB. *J Clin Periodontol.* 2015 ;42(11):1052-9.
4. Advanced Implant Surgery and Bone Grafting Techniques. Klokkevold, PR, Jovanovic, SA (2002). In Newman, Takei, Carranza. *Carranza's Clinical Periodontology* (9th ed.). Philadelphia: W.B. Saunders. pp. 907-8.
5. Osteoinduction, osteoconduction and osseointegration. T. Albrektsson and C. Johansson, *European Spine Journal* 2001, 10, Supplement 2, pp S96-S101.
6. Composite polymer-coated mineral grafts for bone regeneration: material characterisation and model study Pertici G, Rossi F, Casalini T, Perale G, *Annals of Oral & Maxillofacial Surgical Surgery* 2014 Feb 14;2(1):4.
7. Composite polymer-coated mineral scaffolds for bone regeneration: from material characterization to human studies. Pertici G, Carinci F, Carusi G, Epistatus D, Villa T, Crivelli F, Rossi F, Perale G. *Journal of biological regulators & homeostatic agents* Vol. 29, no. 3 (S1), 136-148 (2015).
8. Reconstruction of the zygomatic bone with smartbone®. Grecchi F, Perale G, Candotto V, Busato A, Pascali M, Carinci F. *Journal of biological regulators & homeostatic agents* Vol. 29, no. 3 (S1), 42-47 (2015).



Bioactive Bone is distributed by: Alpha-Bio Tec. Ltd

www.alpha-bio.net

