OsteoBiol®
by Tecnoss

Sp-Block | Dual-Block

HIGHLY OSTEOCONDUCTIVE SCAFFOLDS

REGENERATION SCIENCE

INSPIRED BY NATURE

A unique biotechnology

TECNOSS®: A UNIQUE PROCESS THAT ACCELERATES AND GUIDES NATURAL BONE REGENERATION

Tecnoss® developed and patented a unique biotechnology that prevents the ceramization phase of natural bone and preserves the tissue collagen, allowing an osteoclastic-type remodelling of the biomaterial similar to physiological bone turnover and delivering a product endowed with characteristics very similar to human mineral bone[1].

The combination of these factors allows a consistent new bone formation and a close contact between neo-formed bone and biomaterial (Fig. A).

COLLAGEN: A KEY FACTOR FOR BONE REGENERATION

Collagen has a key role in bone regeneration process in that:

a) it acts as a valid substrate for platelet activation and aggregation
b) it serves to attract and differentiate the mesenchymal stem cells present in the bone marrow[2]
c) it increases the proliferation rate of the osteoblasts up to 2/3 times[3]
d) it stimulates the activation of the platelets, osteoblasts and osteoclasts in the tissue healing process

OSTEOBIOL®: UNIQUE COLLAGENATED BIOMATERIALS

Thanks to the innovative Tecnoss® technology, the OsteoBiol® line has the following important characteristics:

1) absence of a foreign body response[4]
2) gradual resorption over time[5,6]
3) stimulation/acceleration of physiological tissue healing process[2]
4) protection of the grafting site from infection (membranes)[7]
5) capability of carrying medication to the surgical site[8]

The Tecnoss® new generation of biomaterials, thanks to a revolutionary technology, goes beyond the simple role of aiding natural bone regrowth by stimulating and accelerating this vital physiological process.

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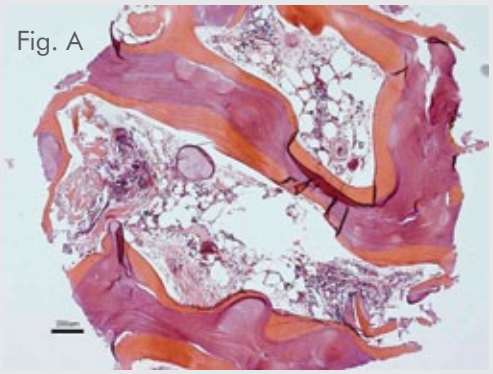

Fig. A

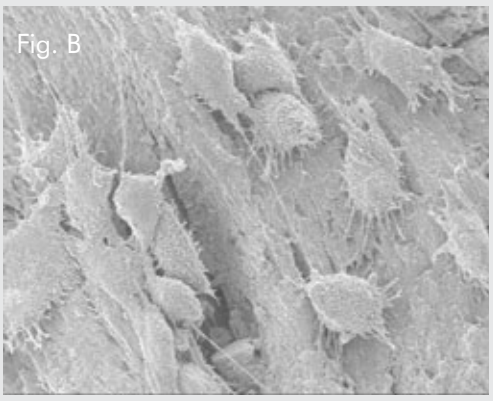

Fig. B

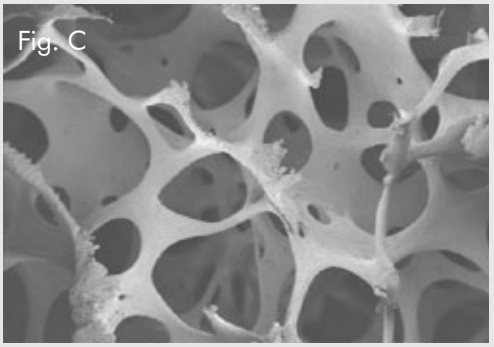

Fig. C

Fig. A – Histology at 3 months. Human mandible grafted with OsteoBiol® Sp-Block. Biopsy courtesy of Dr P Felice, Bologna, Italy. Histology courtesy of Prof U Nannmark, University of Göteborg, Sweden

Fig. B – SEM image of an OsteoBiol® bone matrix colonized by osteoblasts from a cell-line (MG63). Courtesy of Prof U Nannmark, University of Göteborg, Sweden

Fig. C – SEM image of an OsteoBiol® cancellous block trabeculae

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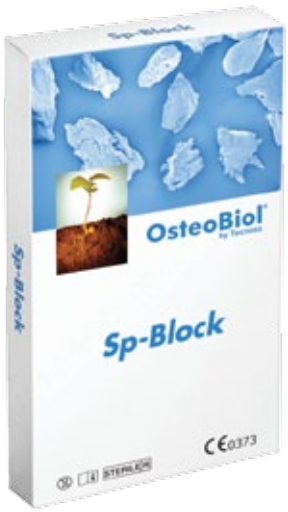
A highly osteoconductive scaffold

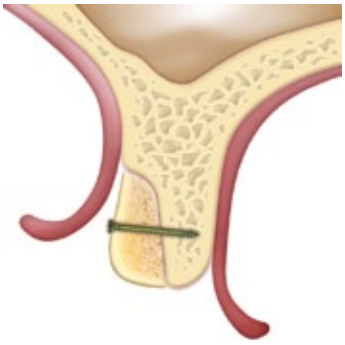


CHARACTERISTICS

Sp-Block and *Dual-Block* support new bone formation[9,10] because of their extremely osteoconductive surface: thanks to the rigid consistency these blocks are able to maintain in time the original graft volume, which is particularly important in case of large regenerations. Moreover the collagen content facilitates blood clotting and the subsequent invasion of regenerative and repairing cells, favoring *restitutio ad integrum* of missing bone.

HANDLING

Sp-Block and *Dual-Block* must be hydrated before use for with sterile lukewarm physiological solution or with antibiotics (5/10 minutes for *Sp-Block* and *Dual-Block Soft*, up to 40 minutes for *Dual-Block Norm*). Afterwards, the block can be adapted to the receiving site which must be accurately decorticated in order to guarantee maximum contact; the blocks should be always fixed with osteosynthesis microscrews. In case of vertical augmentation with inlay technique *Sp-Block* should be fixed also with miniplates. Protection with OsteoBiol® *Evolution* membrane is recommended.



CLINICAL INDICATIONS OVERVIEW

Sp-Block is indicated in cases where a vertical gain in posterior mandible is required[11,12,13], to achieve an augmentation of maximum 5 mm, by means of the inlay technique. *Dual-Block* can be grafted with the onlay technique only to augment horizontally heavily resorbed maxilla. Whatever is the applied technique, it is recommended to fill the gaps around the block with a biomaterial in granules to achieve the desired volume and contour of the augmented recipient site.

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(11) Esposito M et al. Eur J Oral Implantol, 2012 Spring;5(1):19-33
(12) Felice P et al. Eur J Oral Implantol, 2012 Summer;5(2):149-61
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Tissue of origin
Sp-Block: Cancellous bone
Dual-Block: Cortico-cancellous bone

Tissue collagen
Preserved

Physical form
Rigid dried block

Re-entry time
About 8 months, variable depending on characteristics and irroration grade of grafting site and on clinical conditions of patient

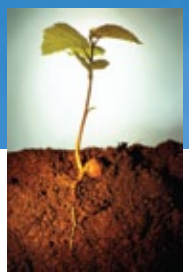
Packaging
Sterile blister

Product codes

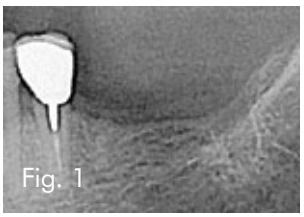
Sp-Block
BN0E | 10x10x10 mm | Equine
BN1E | 10x10x20 mm | Equine
BN2E | 10x20x20 mm | Equine
BN8E | 35x10x5 mm | Equine

Dual-Block
STS7S | 20x15x5 mm | Soft | Porcine curved
STN5S| 20x10x5 mm | Norm | Porcine curved

GMDN code
38746



Excellent clinical performances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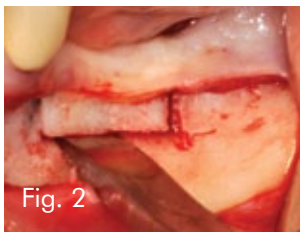
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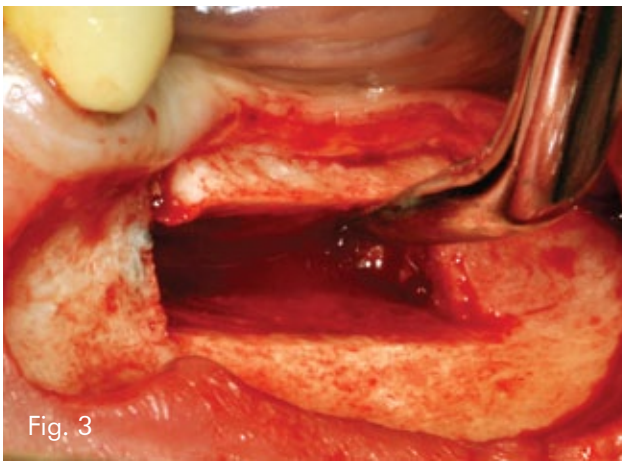
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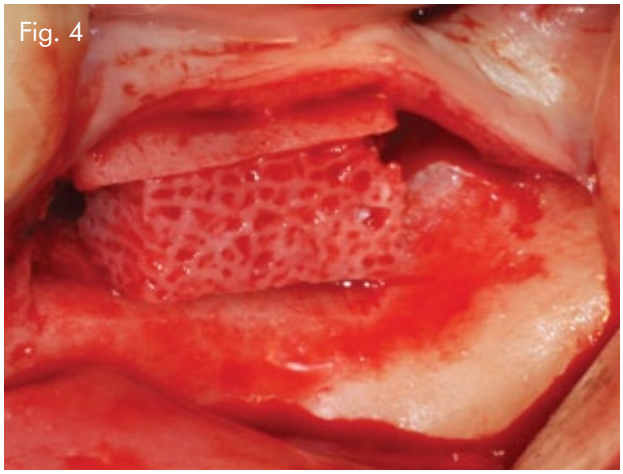
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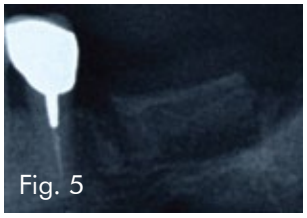
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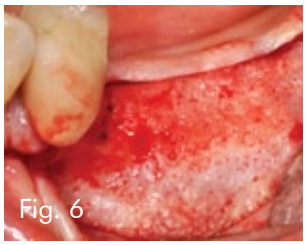
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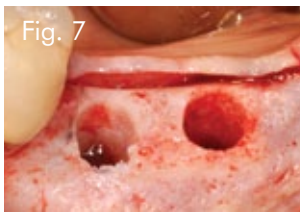
Fig. 7


Fig. 8

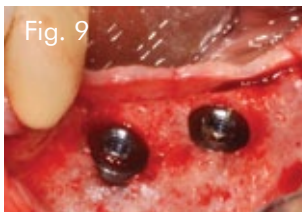
Fig. 9

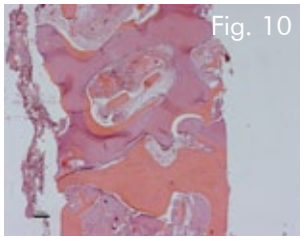
Fig. 10

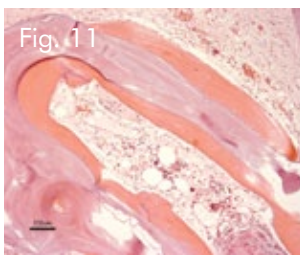
Fig. 11

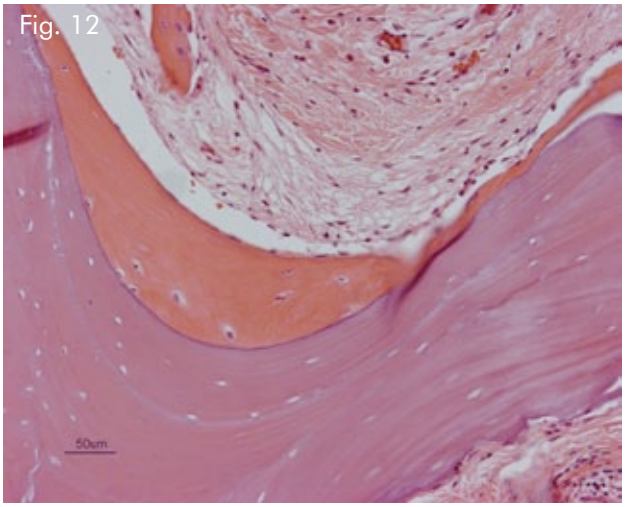
Fig. 12

CASE REPORT

VERTICAL REGENERATION

Vertical regeneration with inlay technique

Sex: **Female** | Age: **60**

Fig. 1 Pre-operatory x-ray

Fig. 2 After one horizontal and two vertical osteotomies, the bone fragment is moved towards the coronal direction

Fig. 3 Space obtained after moving the bone fragment

Fig. 4 Positioning of OsteoBiol® Sp-Block

Fig. 5 Post-surgery x-ray

Fig. 6 Clinical appearance of the graft during re-opening, after 3 months

Fig. 7 Preparation of implant sites

Fig. 8 Positioning of the implants

Fig. 9 Positioning of the implants

Fig. 10 Histology after 3 months*

Fig. 11 Histology detail*

Fig. 12 Histology detail*

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Prof **Ulf Nannmark***
Göteborg University, Sweden

Block: **OsteoBiol® *Sp-Block***

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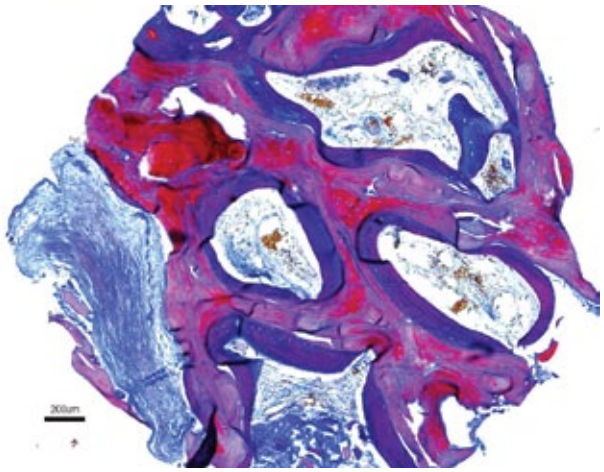
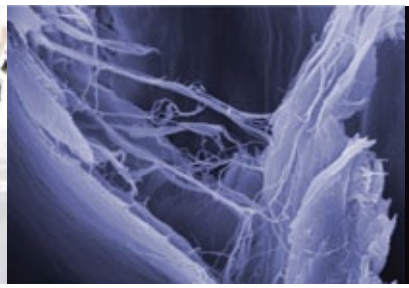


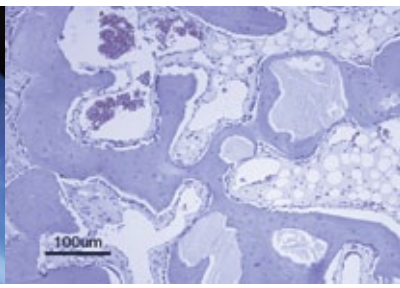
Histology at 3 months. Human mandible grafted with OsteoBiol® Sp-Block. Biopsy courtesy of Dr P Felice, Bologna, Italy. Histology courtesy of Prof U Nannmark, University of Göteborg, Sweden

All literature about OsteoBiol® *Sp-Block* in blue

Sp-Block | Dual-Block

HIGHLY OSTEOCONDUCTIVE SCAFFOLDS



Tecnoss s.r.l. is an innovative, globally active company that develops, produces and documents premium-quality xenogenic biomaterials by the brands Tecnoss® and OsteoBiol®.

Its 20 years of research led to its patent-protected production process that ensures neutralization of antigenic components in order to achieve biocompatibility, while preserving the natural collagen matrix inside the biomaterial.

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