OsteoBiol®
by Tecnoss

mp3

ULTIMATE PERFORMANCE AND HANDLING

Pre-hydrated collagenated heterologous cortico-cancellous bone mix

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 granules[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]
3) stimulation/acceleration of physiological tissue healing process[6]
4) protection of the grafting site from infection (membranes)

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.

OsteoBiol®
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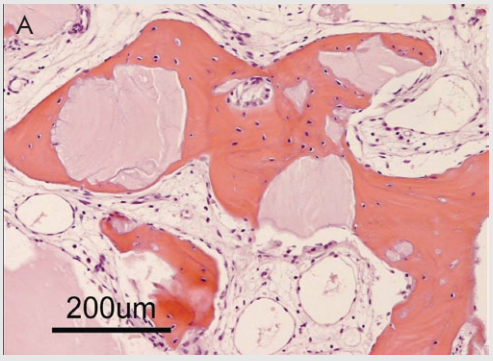

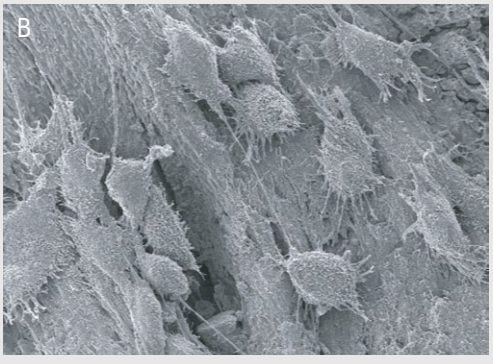

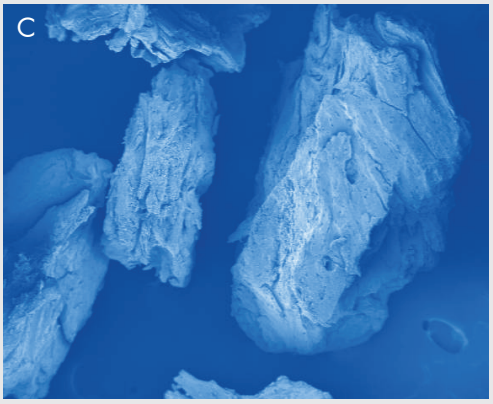

A | Histology at 6 months. Human sinus grafted with OsteoBiol® *mp3*. Biospy courtesy of Dr P Palacci, Marseille, France. Histology courtesy of Dr U Nannmark, University of Göteborg, Sweden
B | SEM image of an OsteoBiol® bone matrix colonized by osteoblasts from a cell-line (MG63). Courtesy of Dr U Nannmark, University of Göteborg, Sweden
C | SEM image showing OsteoBiol® *mp3* particles, granulometry 600-1000 microns. Courtesy of Dr U Nannmark, University of Göteborg, Sweden

1 | Figueiredo M et al. J Biomed Mater Res B Appl Biomater, 2010
2 | Brunelli G, et al. European Journal of Inflammation, 2011
3 | Hsu FY, et al. Biomaterials, 1999
4 | Crespi R et al. International Journal of oral and maxillofacial implants, 2011
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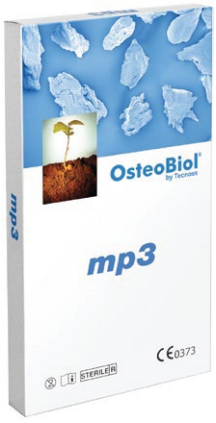
Ultimate performance and handling

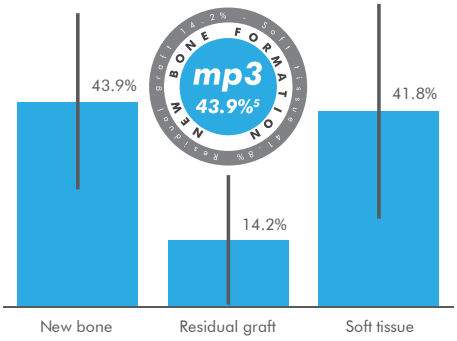


CHARACTERISTICS

Heterologous origin biomaterial made of 600-1000 μm collagenated cortico-cancellous bone mix properly mixed with collagen gel. Gradually resorbable[5], it preserves the original graft shape and volume (osteoconductive property). Moreover, the preserved collagen matrix facilitates blood clotting and the subsequent invasion of repairing and regenerative cells. These unique properties allow an excellent rate of new bone formation[7], delivering graft volume preservation, a healthy new bony tissue and ultimately, a successful implant rehabilitation.

HANDLING

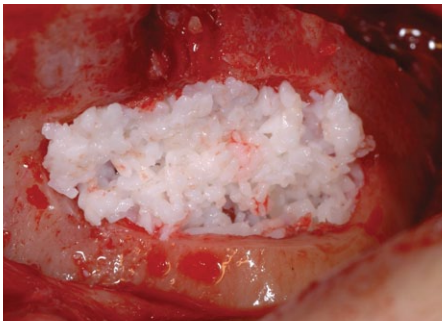
Available in ready-to-use pre-hydrated syringes, *mp3* can be easily grafted avoiding the hydration and manipulation phases decreasing the risk of accidental exposure to pathogens.



OsteoBiol® *mp3* at 6 months from grafting with lateral access sinus lift procedure in human patients[5]

CLINICAL INDICATIONS

mp3 main clinical indication is lateral access maxillary sinus lift[7,8], always in association with *Evolution* membranes: the *mp3* syringe can be directly applied into the bony window without having to mix the product with saline or blood. Due to its collagen gel component, *mp3* allows an excellent graft stability while its hydrophilia guarantees quick blood absorption and therefore the necessary graft vascularization.



Maxillary sinus grafted with OsteoBiol® *mp3*.
Courtesy of Dr Antonio Barone, Lido di Camaiore, Italy

mp3 can also be used in combination with *Evolution* membranes for alveolar ridge preservation[9]: the application of this biomaterial limits significantly the alveolar ridge width and height reduction that would naturally occur with spontaneous healing, preserving thus the alveolar ridge volume and allowing a correct second stage implant placement.

Finally, *mp3* is indicated for horizontal augmentation (two wall defects) in combination with autogenous bone blocks[10] or with OsteoBiol® Cortical *Lamina* (curved model).

Tissue of origin
Heterologous cortico-cancellous bone mix

Tissue collagen
Preserved plus an additional 10% collagen gel (OsteoBiol® *Gel 0*)

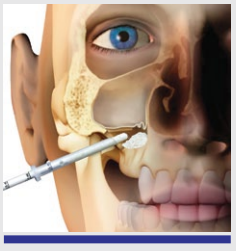
Physical form
Pre-hydrated granules and collagen gel

Composition
90% granulated mix,
10% collagen gel

Granulometry
600-1000 μm

Re-entry time
About 5 months

Packaging
Syringe:1.0 cc, 3 x 0.5 cc, 3 x 1.0 cc
3 x 0.25 cc

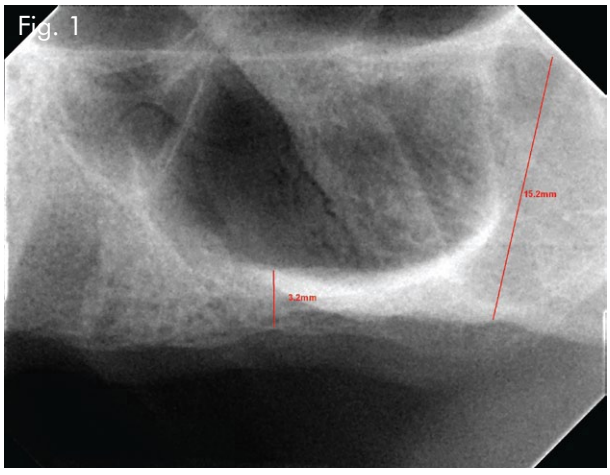


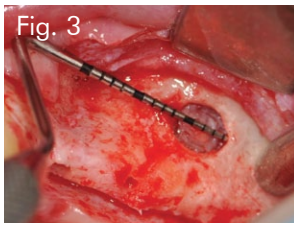
MAXILLARY SINUS FLOOR AUGMENTATION

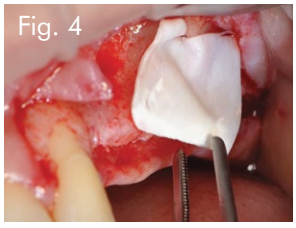
POST-EXTRACTIVE SOCKETS

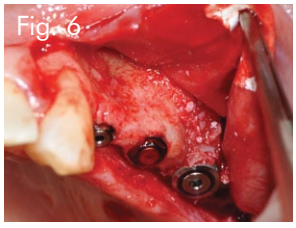
TWO-WALL DEFECTS

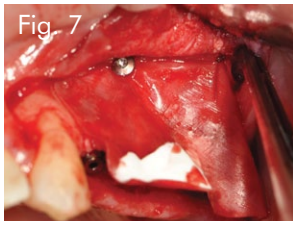
Excellent clinical performances

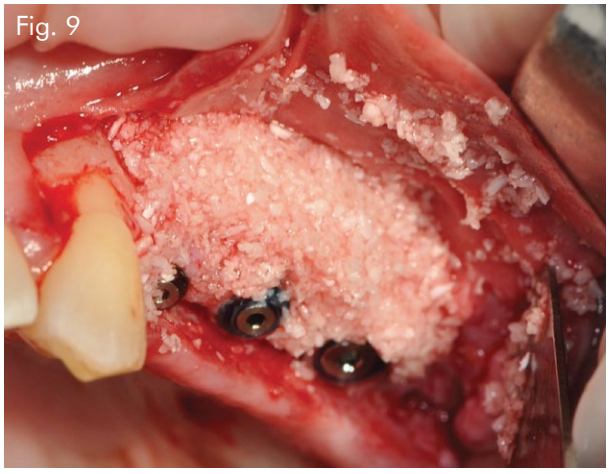


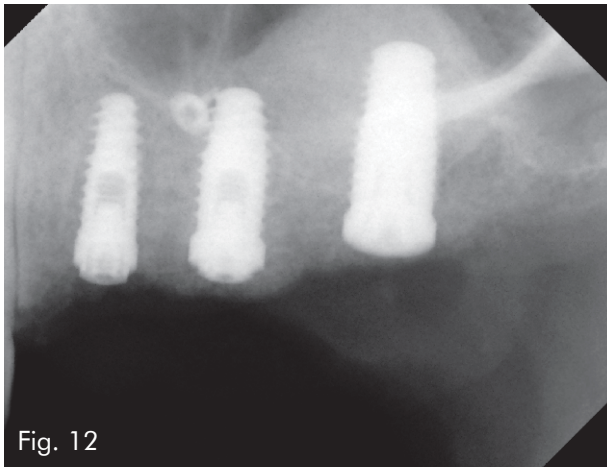


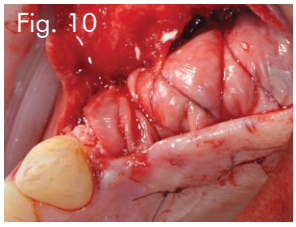


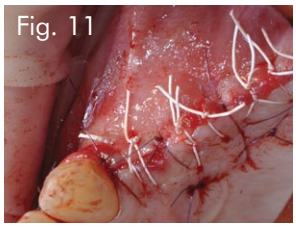












CASE REPORT

■ LATERAL ACCESS SINUS LIFT

Lateral access sinus lift with simultaneous implant and horizontal augmentation

Sex: **Female** | Age: **42**

Fig. 1 Initial x-ray showing a 3mm residual bone

Fig. 2 Flap opening, a substantial vestibular bone resorption can be determined

Fig. 3 Antrostomy performed with Piezo surgery technique

Fig. 4 A OsteoBiol® *Evolution* membrane is inserted through the antrostomy to protect the Schneider membrane from grafting material

Fig. 5 Maxillary sinus grafted with OsteoBiol® *mp3*

Fig. 6 Immediate implant placement

Fig. 7 A OsteoBiol® *Evolution* membrane is stabilised with osteosynthesis screws above the antrostomy

Fig. 8 Cortical bone stimulation

Fig. 9 OsteoBiol® *mp3* is grafted on the vestibular side of the defect for horizontal augmentation

Fig. 10 The OsteoBiol® *Evolution* membrane is stabilised into position with a transpalatal suture

Fig. 11 Final situation

Fig. 12 Post-operative x-ray

Documentation provided by
Dr **Rosario Sentineri**
Private practitioner in Genova, Italy
e-mail: rosario.sentineri@gmail.com

Bone substitute: **OsteoBiol® *mp3***
Membrane: **OsteoBiol® *Evolution***

Scientific publications

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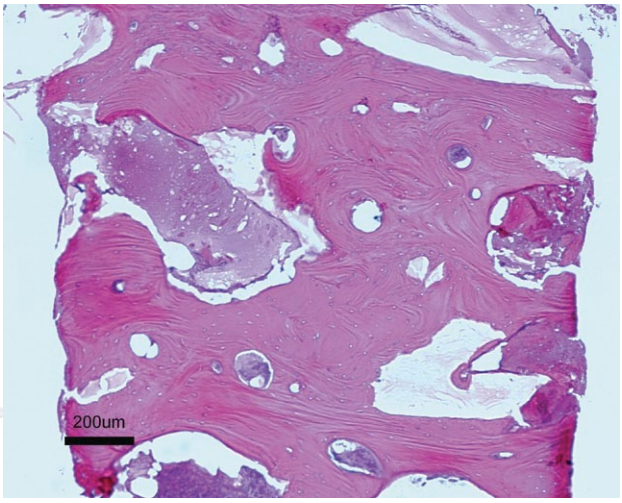
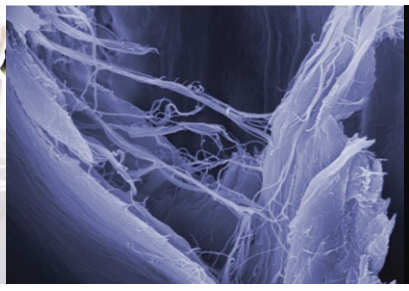


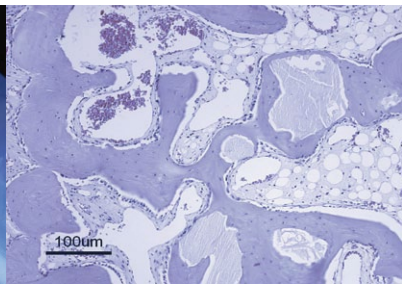
Histology on maxillary sinus biopsy taken at 24 months. 48% new bone formation, 13% residual granules.
Courtesy of Dr Roberto Rossi, Genova, Italy (biopsy) and Prof Ulf Nannmark, University of Göteborg, Sweden (histology).

mp3

ULTIMATE PERFORMANCE AND HANDLING

Pre-hydrated collagenated heterologous cortico-cancellous bone mix



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.

Tecnoss® products comply with highest quality standards such as ISO 10993, ISO13485 (notified body Kiwa Cermet) and 93/42/EEC (notified body CE 0373).

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