Osteopore®

DENTAL

Osteopore® Patient Specific Implant

Mandibular Reconstruction

Osteopore® Patient Specific Implant Mandibular Reconstruction

1 BIOMIMETIC

Patient Specific Implant (PSI) for mandibular bone reconstruction is a custom-made 3D printed bone scaffold made from Polycaprolactone (PCL). The implant is bioresorbable, biocompatible, and non-toxic product[1]. Osteopore® 3D bone scaffold had the excellent track record in reconstruction of craniofacial & maxillofacial bone defects[2-4].

By using patient's digital CT scan data with detail discussion of surgical plan with surgeon, the Osteopore® Patient Specific Implant (PSI) for mandibular bone reconstruction can be provide for regenerative bone surgery. The implant can be safely combined with autologous biologic material/ substance[5-6] to fulfill the principles of osteoconduction, osteoinduction, and osteogenesis.

2 DESIGNED TO FIT

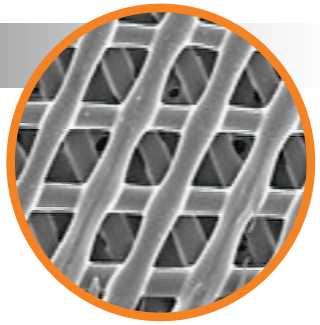
- Osteopore® Patient Specific Implant is designed based on CT images for excellent fit.
- Depending on the size (length, width, thickness) of the implant required, Osteopore® may design a single or multi-piece implant.

3 MATERIAL & RESORBABILITY

- Polycaprolactone (PCL) is a biodegradable polymer that degrades and resorbs fully in vivo by hydrolysis which is then metabolized by the body.
- Osteopore® Patient Specific Implant has a gradual resorption profile, depending on the patient anatomy and metabolism, of approximately 18 - 24 months.
- Osteopore® Patient Specific Implant possesses optimal resorption rate that sustains mechanical integrity during healing process – minimizing adverse host-implant and inflammatory reactions.

4 INTERCONNECTED MICRO-ARCHITECTURE

- Osteopore® Patient Specific Implant is manufactured with a porous interconnected micro-architecture that demonstrates mechanical properties similar to human cancellous bone.
- Upon implantation, blood and surrounding cells are retained in the pores of the scaffold – Creating a regenerative niche that is ideal for tissue formation.



Interconnected micro-architecture

5 HANDLING ADVANTAGE

- Osteopore® Patient Specific Implant require minimal (if any) modification.
- Osteopore® Patient Specific Implant can be modified with scalpel or a pair of scissors, if needed.
- It is suggested that the Osteopore® Patient Specific Implant be modified and rinsed in sterile saline solution away from the surgical site to ensure that the particulate debris does not infiltrate the surgial site after any modifications.
- Osteopore® Patient Specific Implant may be secured with screws and plates, if required. It is compatible with permanent and bioresorbable fixation systems.
- Osteopore® Patient Specific Implant may be combined with any form of biologics (synthetic or autologous).

6 SIDE NOTE

- For professional use. CAUTION: See instructions for use for full prescribing information, including indications, contraindications, warnings, precautions and adverse events.
- This device can only be used upon prescription by a surgeon.
- Protected by patent #: PCT WO2005/048885 and US 6.730.252.B1
-

References

[1] Yeo A, Rai B, Sju E, Cheong JJ, Teoh SH. The degradation profile of novel, bioresorbable PCL-TCP scaffolds: an in vitro and in vivo study. J Biomed Mater Res A. 2008 Jan;84(1):208-18. doi:10.1002/jbm.a.31454. PMID: 17607768.

[2] Schantz JT, Lim TC, Ning C, Teoh SH, Tan KC, Wang SC, Hutmacher DW. Cranioplasty aftertrephination using a novel biodegradable burr hole cover: technical case report. Neurosurgery. 2006 Feb;58(1 Suppl):ONS-E176; discussion ONS-E176. doi: 10.1227/01. NEU.0000193533.54580.3F. PMID: 16462619.

[3] Teo L, Teoh SH, Liu Y, Lim L, Tan B, Schantz JT, Seah LL. A Novel Bioresorbable Implant for Repair of Orbital Floor Fractures. Orbit. 2015;34(4):192-200. doi: 10.3109/01676830.2015.1015263. Epub 2015 May 8. PMID: 25955597.

[4] Schuckert KH, Jopp S, Teoh SH. Mandibular defect reconstruction using three-dimensional polycaprolactone scaffold in combination with platelet-rich plasma and recombinant human bone morphogenetic protein-2: de novo synthesis of bone in a single case. Tissue Eng Part A. 2009 Mar;15(3):493-9. doi: 10.1089/ten.tea.2008.0033. PMID: 18767969.

[5] Liao HT, Chen JP, Lee MY. Bone Tissue Engineering with Adipose-Derived Stem Cells in Bioactive Composites of Laser-Sintered Porous Polycaprolactone Scaffolds and Platelet-Rich Plasma. Materials (Basel). 2013;6(11):4911-4929. Published 2013 Oct 25. doi:10.3390/ma6114911.

[6] Al-Maawi S, Dohle E, Lim J, Weigl P, Teoh SH, Sader R, Ghanaati S. Biologization of Pcl-Mesh Using Platelet Rich Fibrin (Prf) Enhances Its Regenerative Potential In Vitro. Int J Mol Sci. 2021 Feb 22;22(4):2159. doi: 10.3390/ijms22042159. PMID: 33671550; PMCID: PMC7926906.

For professional use.
CAUTION: See instructions for use for full prescribing information, including indications, contraindications, warnings, and precautions.

MCN 04 008B AL Rev 0

Osteopore®
Empowering Natural Tissue Regeneration

Osteopore International | SINGAPORE
2 Tukang Innovation Grove #09-06, JTC MedTech Hub, Singapore 618305