

ARTIFICIAL TISSUE TECHNOLOGY

WE DESIGN NOT ONLY BONE, BUT ALSO THE FUTURE

Real-Time Tissue
Regeneration



| bloocell
the language of technology

A NEW ERA IN TISSUE ENGINEERING



Bloocell®: A New Era in Tissue Engineering

Bloocell® is the world's first "ARTIFICIAL TISSUE TECHNOLOGY" developed in the field of tissue engineering and used in the treatment of tissue deficiencies.

It serves as a complementary and therapeutic solution and can be manufactured in personalized anatomical forms.

With its groundbreaking technology, Bloocell® has become the first legal representative of this paradigm worldwide. Clinical outcomes have been consistently successful.

Bloocell® is a three-dimensional scaffold designed for the treatment of damaged or missing tissues.

It offers a holistic therapeutic approach by supporting cell growth, tissue formation, and the healing process.

While Bloocell® reinforces the structure of the tissue, it also facilitates the proliferation and differentiation of cells in an optimized microenvironment.

Made from biologically compatible materials, Bloocell® does not trigger adverse immune responses once integrated into the body.

As a bioresorbable material, Bloocell® is gradually absorbed and replaced by newly formed tissue. This process provides ideal conditions for natural tissue regeneration and repair.

Bloocell® can reconstruct a wide range of tissue types, including bone, cartilage, soft tissue, skin, and nerves.

Therefore, Bloocell® offers a broader application spectrum compared to conventional grafts and involves lower associated risks.

The Bloocell® technology has been successfully industrialized and patented as a result of laboratory and preclinical studies conducted by scientists around the world.

Following the completion of all legal approvals, it was transformed into a fully developed, market-ready product.

Based on these laboratory and preclinical studies, the effects of Bloocell® on cells, its biocompatibility, mechanical durability, level of mineralization, and angiogenic factors were thoroughly examined. Comprehensive evaluations of the final products were also completed successfully.

The positive clinical outcomes of Bloocell® were presented at the scientific congresses of the European Association for Osseointegration (EAO) and the German Society for Implantology (DGI), two of the leading authorities in the field.

(3-dimensional evaluation of E-polycaprolactone containing membrane's efficacy in guided bone regeneration: A retrospective study)

Özdemir, E., Familiari, F., Huri, P. Y., Firat, A., & Huri, G. (2023). Use of 3D-printed polycaprolactone+ hyaluronic acid-based scaffold in orthopedic practice: report of two cases. *Journal of 3D Printing in Medicine*, 7(1), 3DP001.

Dogan, S. E., Ozturk, C., & Koc, B. (2025). Design of patient-specific mandibular reconstruction plates and a hybrid scaffold. *Computers in Biology and Medicine*, Elsevier 184, 109380.

Bloocell® Bioscaffold

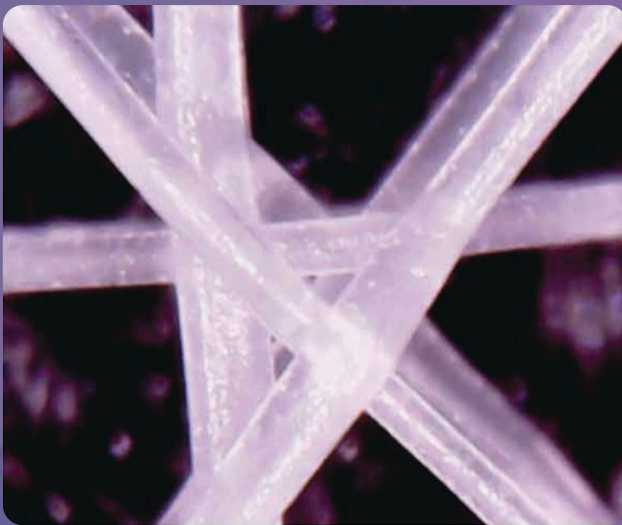
Bloocell® Bioscaffold represents a significant paradigm shift from conventional “standard bone graft” treatments to advanced tissue engineering.

The product is used to provide sufficient load-bearing support during bone regeneration, mimic the mechanical structure of natural tissue, and promote tissue renewal.

Bloocell® Bioscaffold is a three-layered scaffold designed for the repair and regeneration of degenerative and post-traumatic bone and cartilage defects.

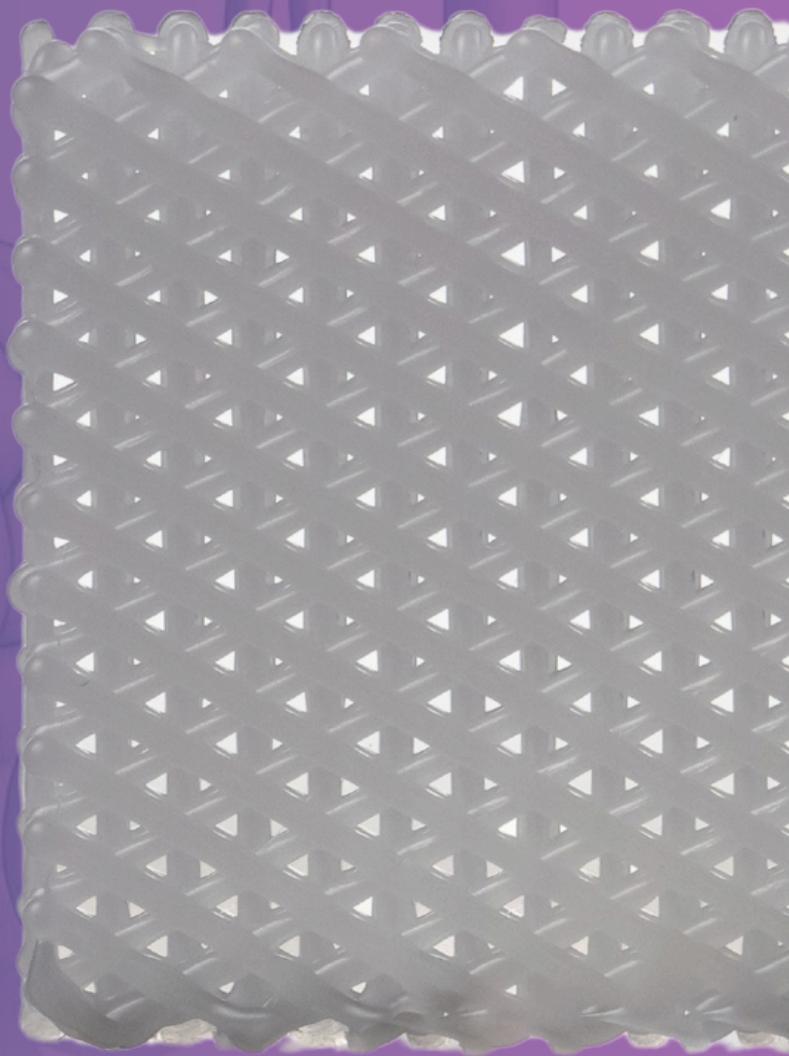
It consists of PCL (Polycaprolactone), HA (Hyaluronic Acid), and β -TCP (Beta-Tricalcium Phosphate).

Bloocell® Bioscaffold contains no animal-derived (xenograft) or human-derived (allograft) tissue components.



Studies on the mechanical structure of Bloocell® Bioscaffold have shown that cells exhibit high proliferation, adhere to the surface, and spread effectively.

Thanks to its ability to replicate the architecture and strength of bone tissue, Bloocell® plays a critical role in achieving harmony between the scaffold and the host tissue, effectively meeting this essential need.



Mechanical Properties and Test Results

Bloocell® Bone Matrix Implant Synthetic is a specially engineered, polymer-based scaffold that provides high biocompatibility and controlled biodegradability.

The product has been optimized for mechanical performance to deliver the necessary structural support during bone regeneration in dental applications.

The mechanical strength of the product was evaluated through uniaxial static compression tests conducted in an accredited, independent testing laboratory, with reference to ISO 5833 and ASTM D695 standards.

These standards define widely accepted methods for assessing the mechanical performance of biomaterials and implants under compressive forces.

Static Compression Test Results



Figure 1. Schematic Diagram of the Test Setup

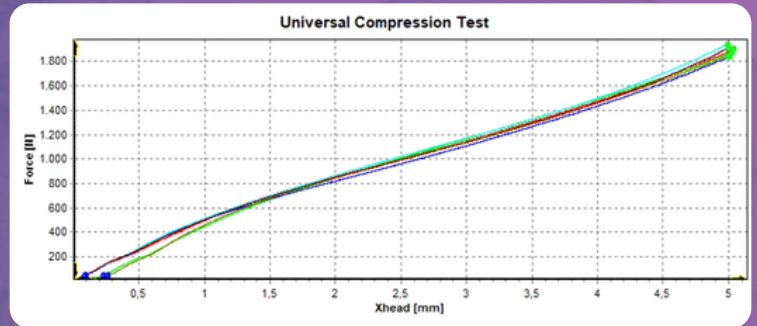
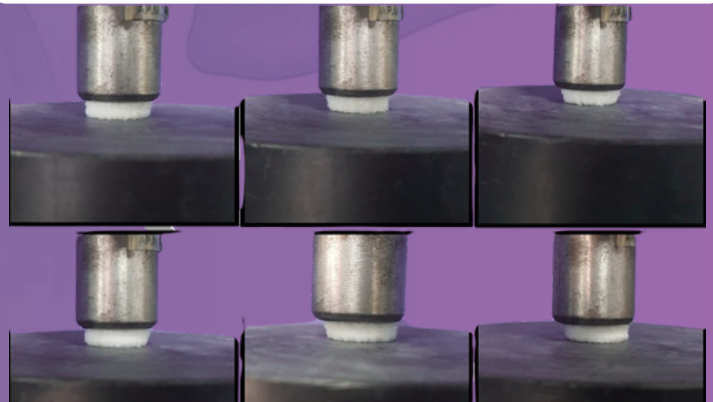
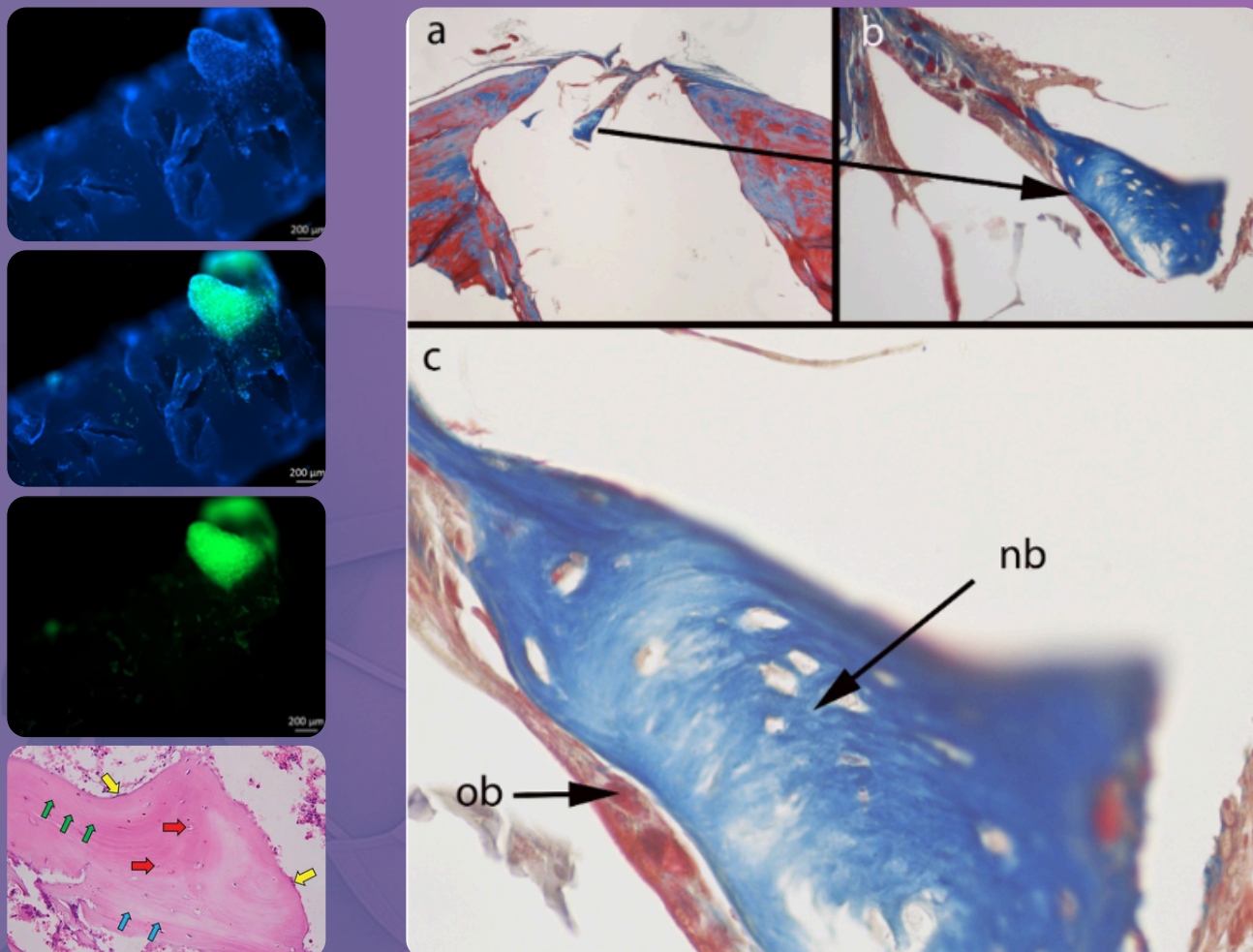


Figure 2. Test Samples

Numune	Maksimum Gerilme (MPa)	Maksimum Yük (N)	Akma Yüğü (N)
A	9.45 ± 0.20	1900 ± 39	577 ± 13
B	9.29 ± 0.20	1868 ± 39	546 ± 13
C	9.15 ± 0.20	1840 ± 39	571 ± 13
D	9.19 ± 0.20	1848 ± 39	557 ± 13
E	9.66 ± 0.20	1941 ± 39	578 ± 13
F	9.49 ± 0.20	1908 ± 39	559 ± 13



Histopathological Findings and Evaluation of Tissue Compatibility

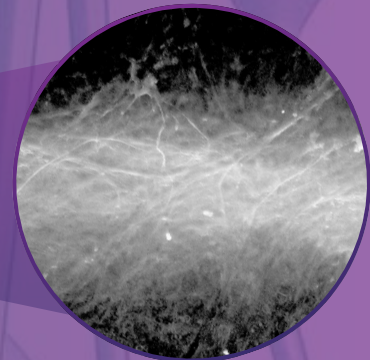
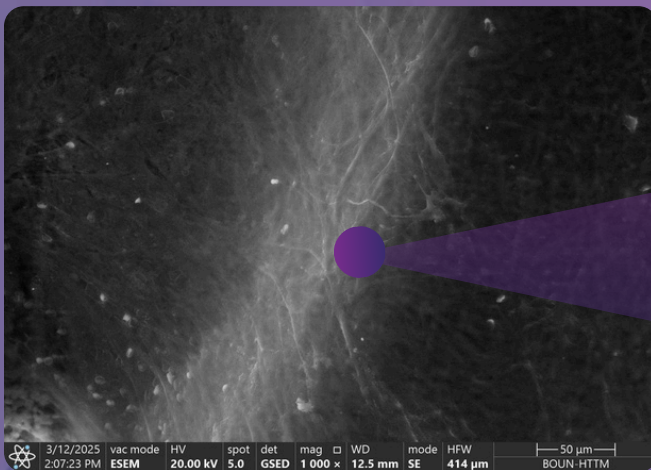
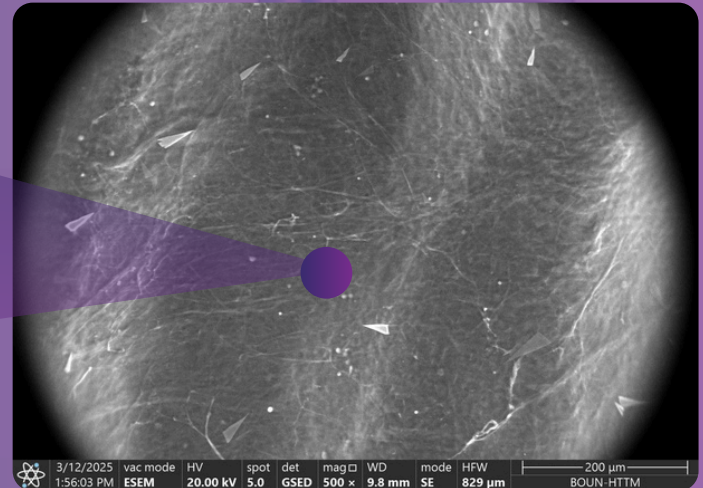
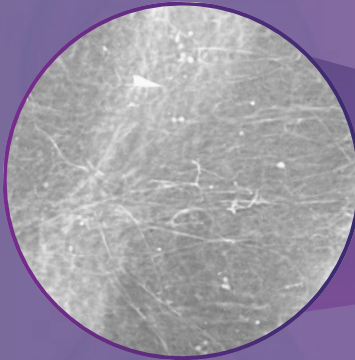


Histological examinations (Hematoxylin-Eosin and Masson Trichrome staining) of tissue samples collected at the end of the study revealed the following findings:

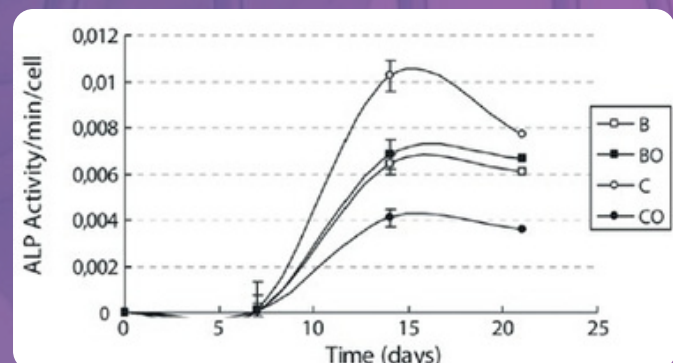
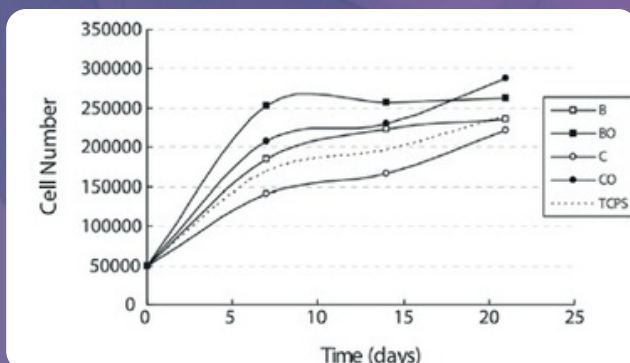
- The biocompatibility of Bloocell® Bioscaffold is remarkably high, with no signs of foreign body reaction or inflammation observed.
- Thanks to Bloocell® Bioscaffold, the presence of osteoblasts and the formation of new bone tissue were detected around the implant in both cell-seeded and cell-free groups.
- Microscopic analysis confirmed that Bloocell® Bioscaffold is gradually resorbed and replaced by natural bone tissue.
- In the cell-enriched groups, bone formation was observed to be more organized and denser.

These findings demonstrate that Bloocell® Bioscaffold not only provides mechanical support but also offers a biologically active and safe microenvironment for bone regeneration.

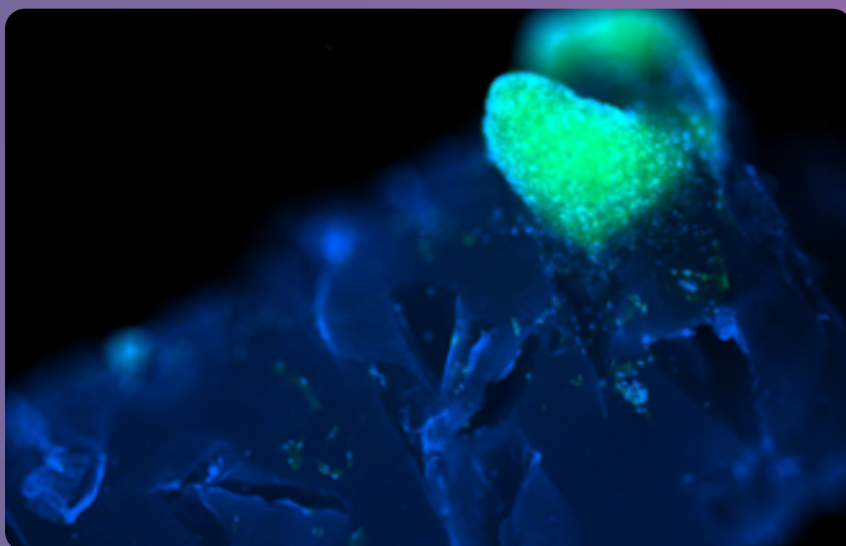
MSC Proliferation on PCL Scaffold



The ALP results correlate with the cell proliferation tests. Higher ALP activity values were obtained in samples with lower cell proliferation. In line with the measurements and consistent with high cross-proliferation patterns, MSC differentiation (indicated by high ALP activity) was observed on the scaffold surface. These findings confirm that Bloocell® Bioscaffold not only provides physical support, but also actively supports and regulates cellular functions.



Vascularization and Mineral Deposition

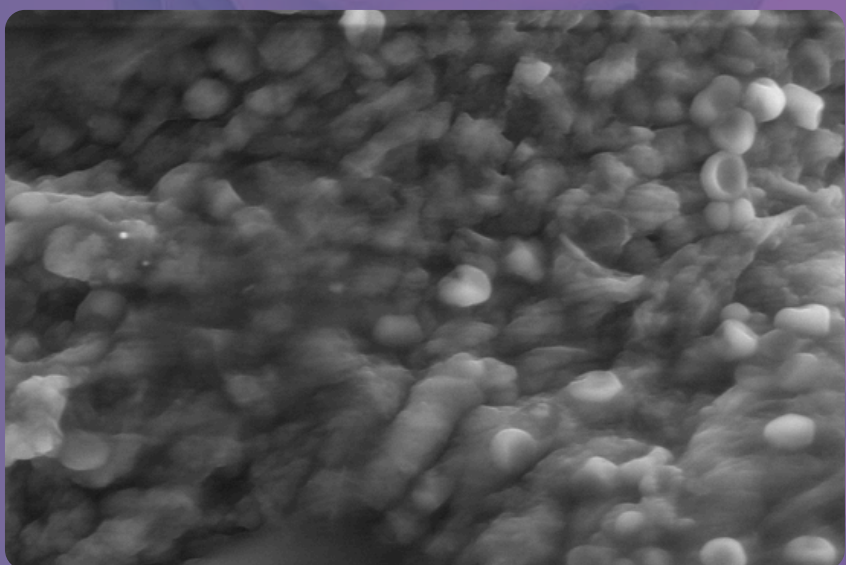


This image illustrates vascularization and tissue integration in both cell-free and cell-seeded scaffolds.

While cell-free scaffolds exhibit limited integration and lack vascular structures, the addition and cultivation of cells lead to enhanced tissue organization and increased vascular formation.

Immunofluorescence analyses reveal pronounced vessel development and vascularization in the cultured scaffolds.

Recovery of Complex Geometric Features



The visuals related to “Recovery” illustrate the reprocessing of used materials and the technologies involved.

They depict the stages of recycling, the transformation in material shape, and the geometric characteristics of the final product.

Additionally, micro-level changes in the material are also highlighted.

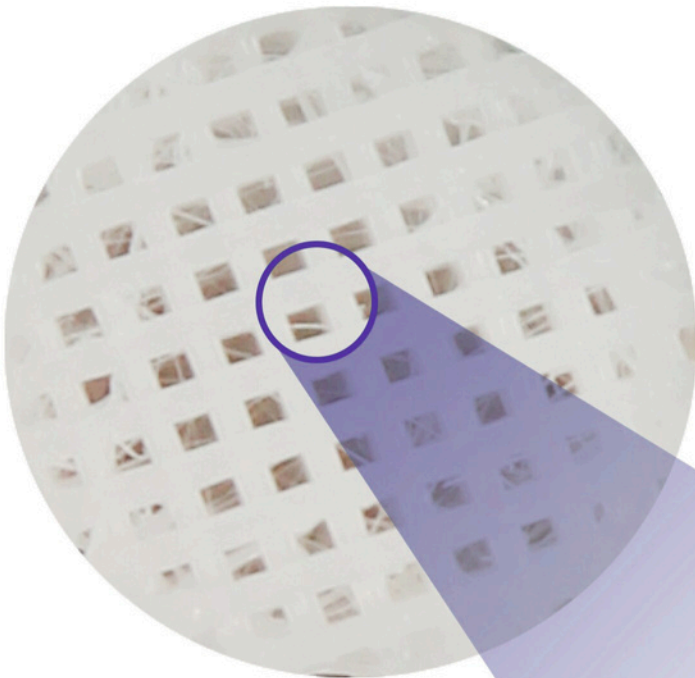
Bloocell® Bioscaffold is a bioresorbable polymeric scaffold system developed for the repair of bone defects and articular tissues.

Its porous structure, designed to mimic trabecular bone architecture, allows the passage of bone marrow, vascular structures, and nutrients—thereby supporting autologous regeneration.

Enriched with hyaluronic acid, its Polycaprolactone (PCL) composition provides biocompatibility and resorbability, offering an effective regenerative platform that supports the natural healing processes of bone and cartilage tissues.

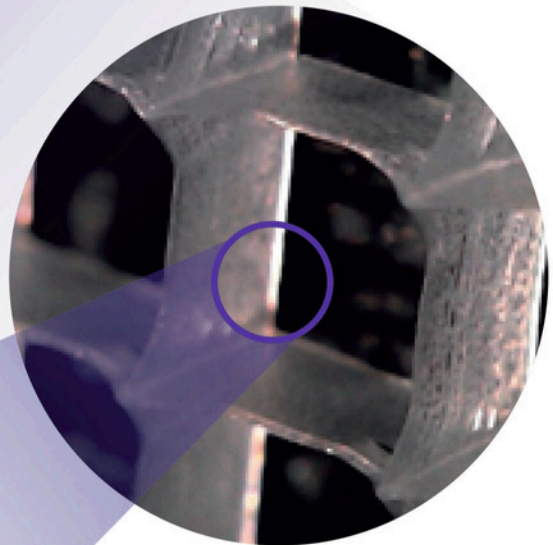
Thanks to its biomimetic and bioresorbable properties, this technology is classified as a medical device.



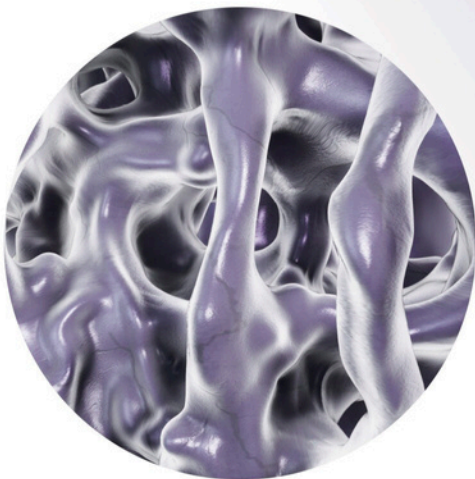


Hyaluronic acid (HA) has a water content similar to that of human tissue, exhibits excellent biocompatibility, and supports cell proliferation.

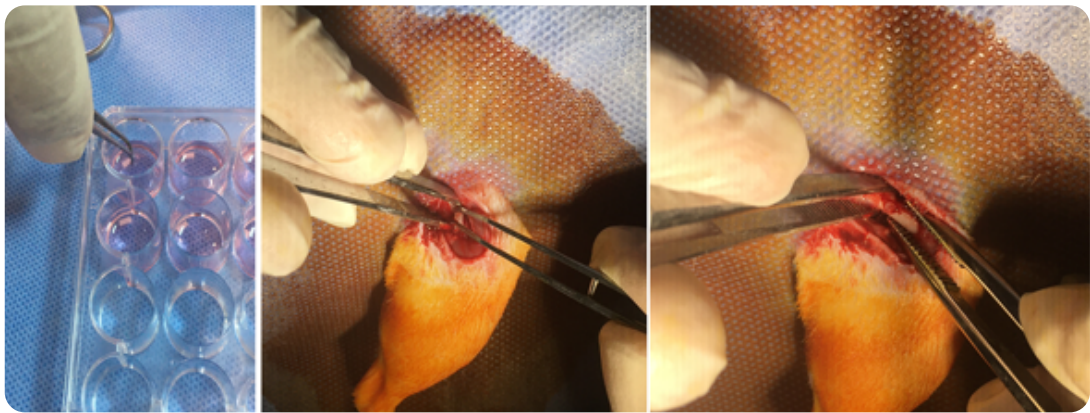
Bloocell® Bioscaffold provides chemical signals to the patient's own cells to promote bone growth and regeneration.



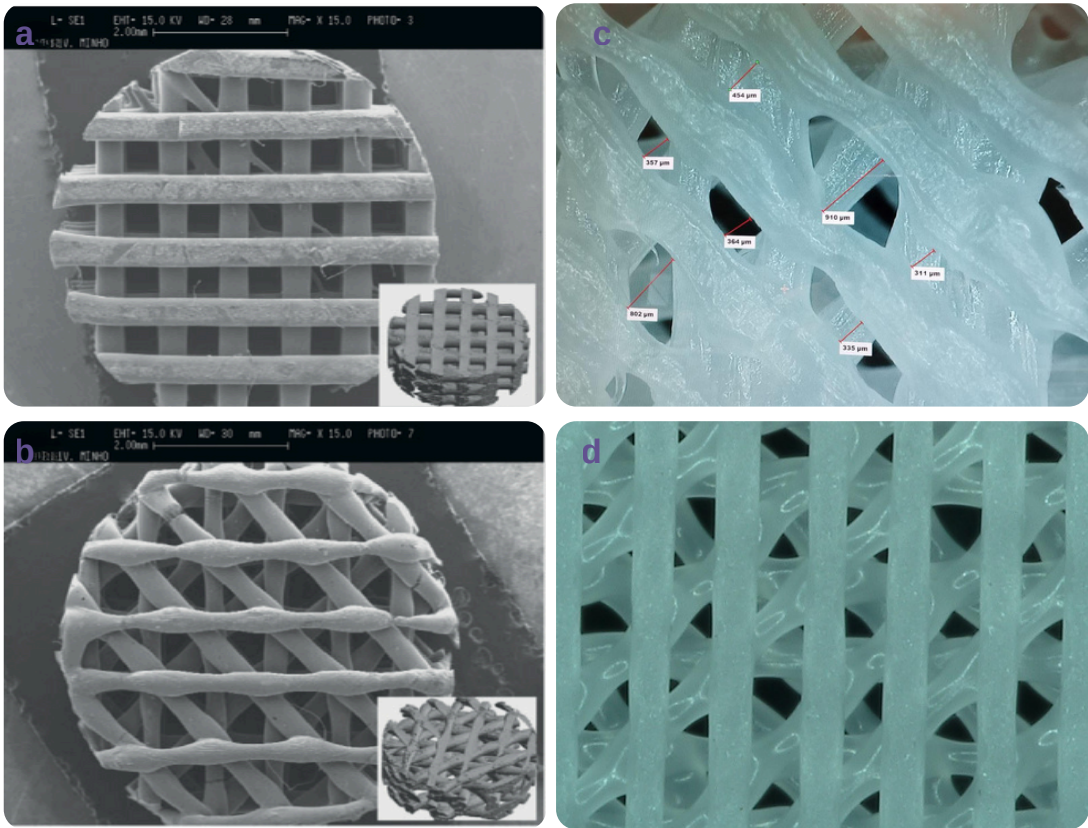
Since HA is rich in hydroxyl and carboxyl groups, it can form a hydrogel under conditions such as chemical modification, crosslinking, or photo-crosslinking.



The effectiveness of Bloocell® Bioscaffold can be enhanced by loading it with growth factors that mimic natural conditions, offering significant potential for clinical applications.



Implantation and Surgical Images from Preclinical Studies



The pore size, shape, and necessary structural integrity of the architectural scaffold are designed to provide strength, load-bearing capacity, and an ideal microenvironment for cells and tissue ingrowth.



A cartilage defect approximately 1 cm deep represents an osteochondral injury accompanied by loss of bone tissue. In such lesions, a biomimetic matrix structure can promote cartilage regeneration by supporting the remodeling of tissue in the subchondral region that resembles the original hyaline cartilage. This approach helps avoid extensive joint reconstruction surgery, preserves anatomical tissue integrity, and allows for the restoration of the joint/bone surface using less invasive surgical techniques.

INDICATIONS

1

It is used for fracture repair, filling surgical defects, and providing tissue support.

2

Alongside the process of bone and/or tissue regeneration and remodeling, the scaffold gradually transforms into the desired structure over time.

3

Thanks to its unique porous architecture, it rapidly becomes saturated with bone marrow, blood, and nutrients.

4

It provides the patient's own cells with the biochemical signals necessary for bone formation and remodeling.

5

Its mesh-like structure offers both rigidity and flexibility, allowing it to adapt to various anatomical regions.

6

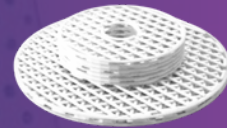
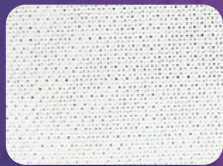
It possesses sufficient mechanical strength and supports bone ingrowth.

7

During the bone regeneration and remodeling process, the implant is gradually broken down and naturally resorbed.

PRODUCT CATALOG

BLOOCELL® BIOSCAFFOLD
BONE & TISSUE REGENERATION



Bloocell® Bioscaffold Sheets



CATALOG NO	DESCRIPTION	A mm	B mm	THICKNESS mm
55000	Bloocell® Bioscaffold Sheets	20	20	1.25
55001	Bloocell® Bioscaffold Sheets	20	30	1.25
55002	Bloocell® Bioscaffold Sheets	20	40	1.25
55003	Bloocell® Bioscaffold Sheets	20	50	1.25
55004	Bloocell® Bioscaffold Sheets	30	30	1.25
55005	Bloocell® Bioscaffold Sheets	40	40	1.25
55006	Bloocell® Bioscaffold Sheets	50	50	1.25
55007	Bloocell® Bioscaffold Sheets	50	75	1.25
55008	Bloocell® Bioscaffold Sheets	75	100	1.25
55009	Bloocell® Bioscaffold Sheets	100	100	1.25
55010	Bloocell® Bioscaffold Sheets	100	150	1.25
55011	Bloocell® Bioscaffold Sheets	150	150	1.25
55012	Bloocell® Bioscaffold Sheets	150	200	1
55013	Bloocell® Bioscaffold Sheets	20	20	1
55014	Bloocell® Bioscaffold Sheets	20	30	1
55015	Bloocell® Bioscaffold Sheets	20	40	1
55016	Bloocell® Bioscaffold Sheets	20	50	1
55017	Bloocell® Bioscaffold Sheets	30	30	1
55018	Bloocell® Bioscaffold Sheets	40	40	1
55019	Bloocell® Bioscaffold Sheets	50	50	1
55020	Bloocell® Bioscaffold Sheets	50	75	1
55021	Bloocell® Bioscaffold Sheets	75	100	1
55022	Bloocell® Bioscaffold Sheets	100	100	1
55023	Bloocell® Bioscaffold Sheets	100	150	1
55024	Bloocell® Bioscaffold Sheets	150	150	0.8
55025	Bloocell® Bioscaffold Sheets	150	200	0.8
55026	Bloocell® Bioscaffold Sheets	20	20	0.8
55027	Bloocell® Bioscaffold Sheets	20	30	0.8
55028	Bloocell® Bioscaffold Sheets	20	40	0.8
55029	Bloocell® Bioscaffold Sheets	20	50	0.8
55030	Bloocell® Bioscaffold Sheets	30	30	0.8
55031	Bloocell® Bioscaffold Sheets	40	40	0.8
55032	Bloocell® Bioscaffold Sheets	50	50	0.8
55033	Bloocell® Bioscaffold Sheets	50	75	0.8
55034	Bloocell® Bioscaffold Sheets	75	100	0.8
55035	Bloocell® Bioscaffold Sheets	100	100	0.8

CATALOG NO	DESCRIPTION	A mm	B mm	THICKNESS mm
55036	Bloocell® Bioscaffold Sheets	100	150	0.8
55037	Bloocell® Bioscaffold Sheets	150	150	0.8
55038	Bloocell® Bioscaffold Sheets	200	200	0.8
55039	Bloocell® Bioscaffold Sheets	20	20	0.6
55040	Bloocell® Bioscaffold Sheets	20	30	0.6
55041	Bloocell® Bioscaffold Sheets	20	40	0.6
55042	Bloocell® Bioscaffold Sheets	20	50	0.6
55043	Bloocell® Bioscaffold Sheets	30	30	0.6
55044	Bloocell® Bioscaffold Sheets	40	40	0.6
55045	Bloocell® Bioscaffold Sheets	50	50	0.6
55046	Bloocell® Bioscaffold Sheets	50	75	0.6
55047	Bloocell® Bioscaffold Sheets	75	100	0.6
55048	Bloocell® Bioscaffold Sheets	100	100	0.6
55049	Bloocell® Bioscaffold Sheets	100	150	0.6
55050	Bloocell® Bioscaffold Sheets	150	150	0.6
55051	Bloocell® Bioscaffold Sheets	150	200	0.6
55052	Bloocell® Bioscaffold Sheets	20	20	0.4
55053	Bloocell® Bioscaffold Sheets	20	30	0.4
55054	Bloocell® Bioscaffold Sheets	20	40	0.4
55055	Bloocell® Bioscaffold Sheets	20	50	0.4
55056	Bloocell® Bioscaffold Sheets	30	30	0.4
55057	Bloocell® Bioscaffold Sheets	40	40	0.4
55058	Bloocell® Bioscaffold Sheets	50	50	0.4
55059	Bloocell® Bioscaffold Sheets	50	75	0.4
55060	Bloocell® Bioscaffold Sheets	75	75	0.4
55061	Bloocell® Bioscaffold Sheets	20	20	
55062	Bloocell® Bioscaffold Sheets	20	30	
55063	Bloocell® Bioscaffold Sheets	20	40	
55064	Bloocell® Bioscaffold Sheets	20	50	
55065	Bloocell® Bioscaffold Sheets	30	30	
55066	Bloocell® Bioscaffold Sheets	40	40	
55067	Bloocell® Bioscaffold Sheets	50	50	
55068	Bloocell® Bioscaffold Sheets	50	75	
55069	Bloocell® Bioscaffold Sheets	75	75	

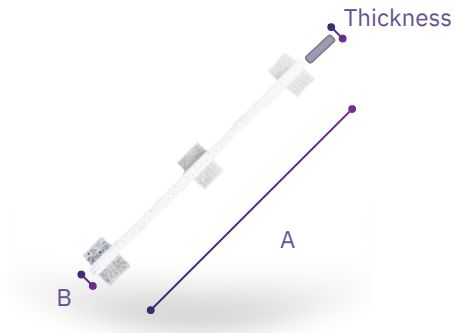
Bloocell® Bioscaffold Cylinder

CATALOG NO	DESCRIPTION	DIAMETER mm	LENGTH mm
52001	Bloocell® Bone Matriks Implant Synthetic	16	10
52002	Bloocell® Bone Matriks Implant Synthetic	18	10
52003	Bloocell® Bone Matriks Implant Synthetic	20	10
52004	Bloocell® Bone Matriks Implant Synthetic	16	20
52005	Bloocell® Bone Matriks Implant Synthetic	18	20
52006	Bloocell® Bone Matriks Implant Synthetic	20	20



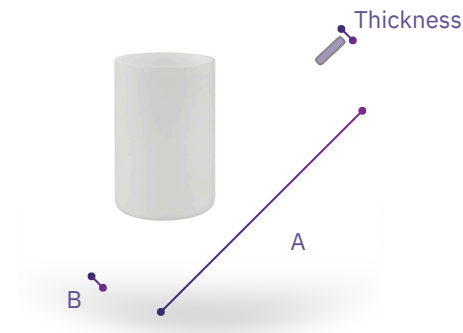
Bloocell® Stick

CATALOG NO	DESCRIPTION	A mm	B mm	Thickness mm
56064	Bloocell® Stick	2	4	100
56065	Bloocell® Stick	3,5	4	100



Bloocell® Neural Tube

CATALOG NO	DESCRIPTION	A mm	B mm	Thickness mm
56066	Bloocell® Neural Tube	2	4	100
56067	Bloocell® Neural Tube	3,5	4	100

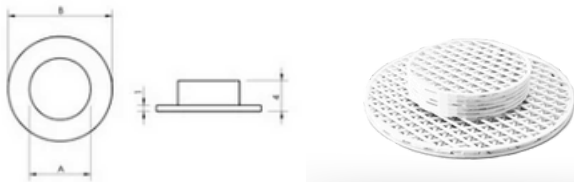


Bloocell® Plug C



CATALOG NO	DESCRIPTION	A mm	B mm	THICKNESS mm	Catheter (FR)
58000	Bloocell® Plug C	8	14	5	7
58000	Bloocell® Plug C	9	15	5	7
58000	Bloocell® Plug C	10	17	5	8
58000	Bloocell® Plug C	11	19	5	8
58000	Bloocell® Plug C	12	20	5	8
58000	Bloocell® Plug C	13	22	5	9
58000	Bloocell® Plug C	14	24	5	9
58000	Bloocell® Plug C	15	25	5	9
58000	Bloocell® Plug C	16	27	5	10

Bloocell® Plug



CATALOG NO	DESCRIPTION	A mm	B mm	THICKNESS mm
56055	Bloocell® Plug	8	14	11
56056	Bloocell® Plug	9	15	11
56057	Bloocell® Plug	10	17	11
56058	Bloocell® Plug	11	19	11
56059	Bloocell® Plug	12	20	11
56060	Bloocell® Plug	13	22	11
56061	Bloocell® Plug	14	24	11
56062	Bloocell® Plug	15	25	11
56063	Bloocell® Plug	16	27	11

Bloocell® Plug Hole



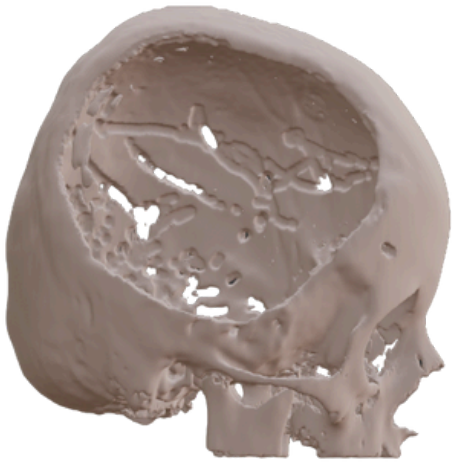
CATALOG NO	DESCRIPTION	A mm	B mm	THICKNESS mm
60001	Bloocell® Plug Hole	10	17	11
60002	Bloocell® Plug Hole	11	19	11
60003	Bloocell® Plug Hole	12	20	11
60004	Bloocell® Plug Hole	13	22	11
60005	Bloocell® Plug Hole	14	24	11
60006	Bloocell® Plug Hole	15	25	11

Bloocell® Cylinder Half



CATALOG NO	DESCRIPTION	A mm	B mm	THICKNESS mm
60007	Bloocell® Cylinder Half	10	5	11
60008	Bloocell® Cylinder Half	11	6	11
60009	Bloocell® Cylinder Half	12	7	11
60010	Bloocell® Cylinder Half	13	8	11
60011	Bloocell® Cylinder Half	14	9	11
60012	Bloocell® Cylinder Half	15	10	11

CUSTOM-MADE BIOSCAFFOLD



The CT/CBCT data of the bone defect is converted into a three-dimensional model.

Bloocell® Custom Made Bioscaffold not only ensures anatomical compatibility but also delivers high biological performance.

Thanks to its bioresorbable nature, it is gradually absorbed by the body while supporting the natural formation of new bone tissue.

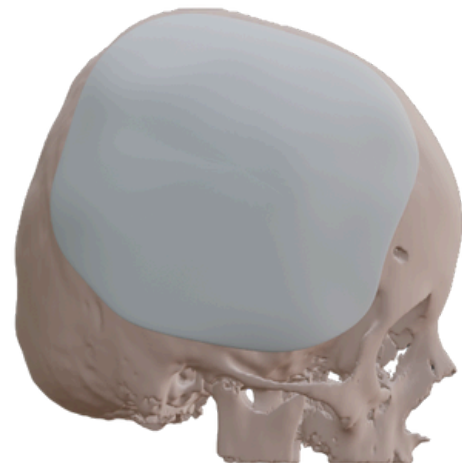
This technology enables surgical interventions to be performed in a more planned and successful manner, shortening patients' recovery times and achieving more natural long-term results.

With this innovative approach in personalized biomaterials, Bloocell® continues to pioneer breakthroughs in regenerative medicine and tissue engineering.

Bloocell® Bioscaffold has initiated a new era in jaw reconstruction with its Custom Made production.

The Custom Made Bioscaffold developed by Bloocell® is an implant system designed to perfectly match the patient's bone structure and features bioresorbable properties. This innovative product stands out by offering a personalized solution, particularly for the repair of bone loss or deformities in the jaw.

In this unique jaw surgery application, the patient's medical imaging data (CT/MRI) was analyzed in 3D, and a custom Bloocell® scaffold was designed to anatomically fit the missing or damaged area precisely.

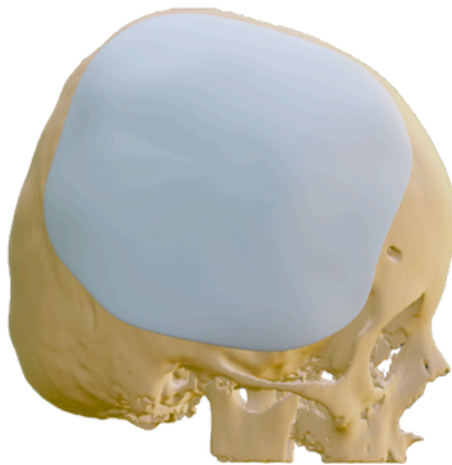


Bloocell® Custom Made Bioscaffold provides ideal anatomical reconstruction in cranial defects with its patient-specific compatibility.

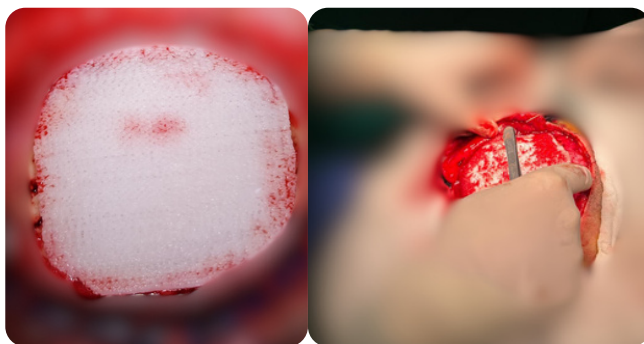
Bloocell® Custom Made Bioscaffold is a bioresorbable implant designed to provide ideal anatomical reconstruction of cranial defects with patient-specific compatibility.

Following surgical implantation, it is gradually absorbed by the body and replaced by newly formed autologous bone tissue. This biological remodeling process shortens healing time and allows for more natural, functional outcomes.

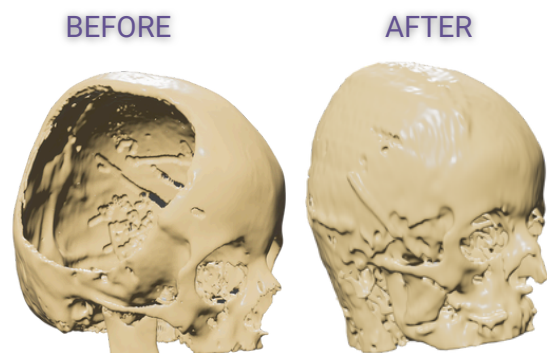
Below are patient application images showcasing the customized adaptation of Bloocell® Custom Made Bioscaffold to the cranial region. These visuals clinically demonstrate how the product integrates with individual bone morphology and contributes positively to the treatment process.



Design created based on the patient's specified CT/CBCT data, taking the defect area into account.

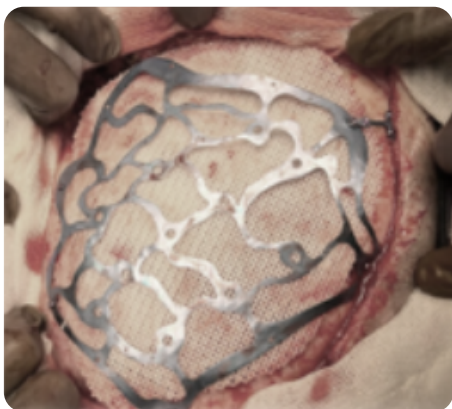
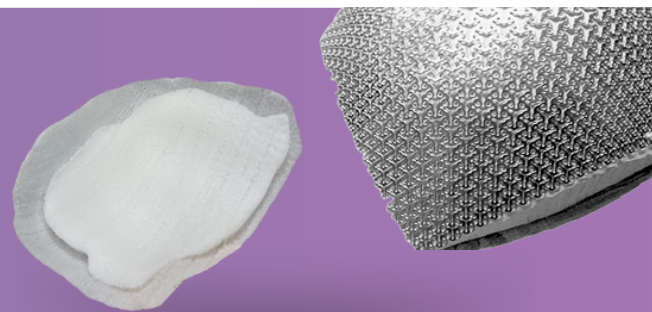


Application of the produced Bloocell® Bioscaffold product





HYBRID BIOSCAFFOLD



This hybrid approach offers higher patient compliance and long-term success rates compared to traditional implant systems.

Especially in complex clinical cases such as segmental bone loss, asymmetric deformities, and traumatic defects, Bloocell®'s hybrid jaw solutions make surgical planning more predictable while allowing controlled progression of the regenerative process.

The manufacturing process is supported by advanced 3D medical modeling, patient-specific parametric design principles, and innovative material engineering compatible with biological tissue.

This ensures not only a functional restoration but also high aesthetic integrity.

Bloocell®'s dental product line is shaped by personalized manufacturing technology and advanced biomaterial engineering.

This individualized treatment model contributes to achieving optimal clinical outcomes in jaw surgery from both functional and aesthetic perspectives.

The newly developed 'Hybrid Mesh' cranial implant technology combines bioresorbable and biocompatible materials to achieve both mechanical durability and tissue integrity.

This hybrid structure allows for more flexible and reliable reconstructive interventions, especially in more complex jaw defects.

The balanced material composition simultaneously addresses the surgeon's technical requirements and supports the patient's biological healing process.



METAL IMPLANT



Bloocell® Titanium Implants, made from medical-grade titanium, are distinguished by their high biocompatibility, lightness, and durability.

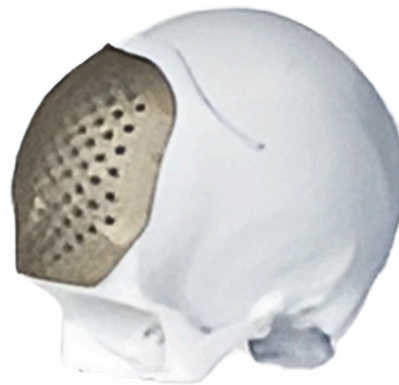
Their surface structure supports osseointegration, creating a stable and long-lasting integration with surrounding bone tissue.

They provide a reliable reconstructive solution both functionally and aesthetically for maxillofacial, mandibular, and cranial defects.



Bloocell® Titanium Custom Made Implants are digitally designed in 3D using the patient's medical imaging data (CT/MRI) and manufactured with advanced production techniques to achieve precise anatomical fit. This personalized approach enables a level of precision, especially in complex and asymmetric bone defects, that traditional methods cannot reach.

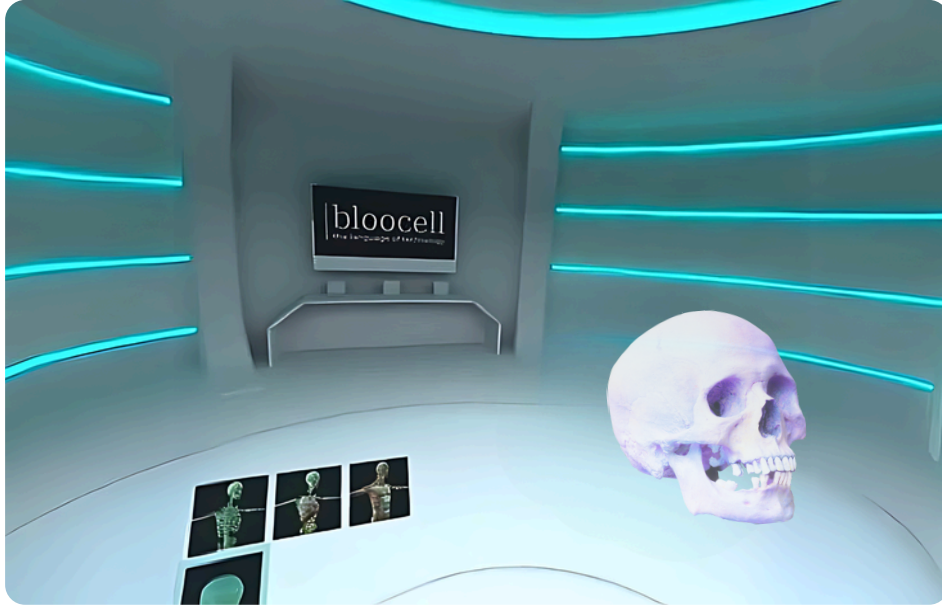
Bloocell®'s engineering infrastructure supports surgeons by providing implants tailored to each case, allowing for more predictable preoperative planning.



This technology enables surgical procedures to be completed more quickly, with lower complication risks and higher success rates. Personalized titanium solutions increase patient comfort while maximizing functional outcomes.®

With its expertise in regenerative medicine and tissue engineering, Bloocell® adds a new dimension to medical solutions by utilizing titanium most efficiently in custom implant design.

BLOOCELL® VR LABORATORY



Bloocell® develops solutions that integrate digital technologies with biotechnology, offering high precision and safety in medical applications.

Thanks to an advanced 3D simulation infrastructure, surgeons can virtually perform procedures in detail before surgery and analyze implant or biomaterial designs comprehensively.

This pre-assessment process enhances operational accuracy and minimizes error and deviation rates.

Bloocell® continues to drive transformation in health technologies through interdisciplinary engineering approaches.

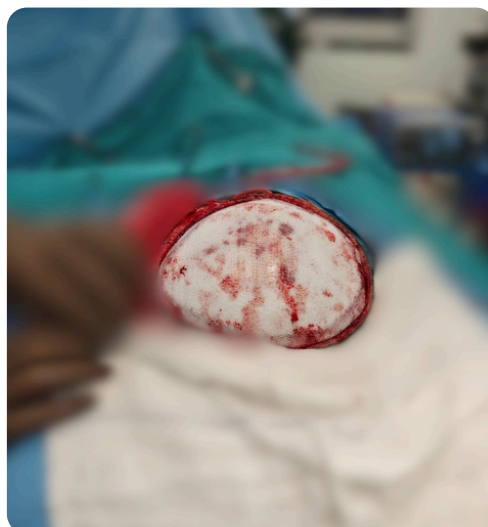
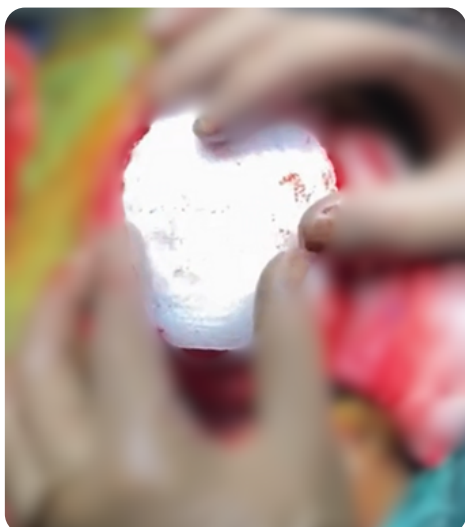
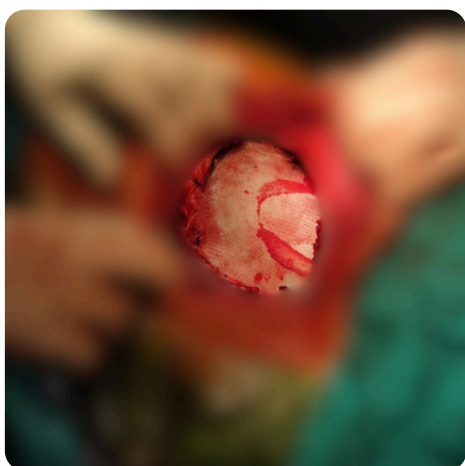
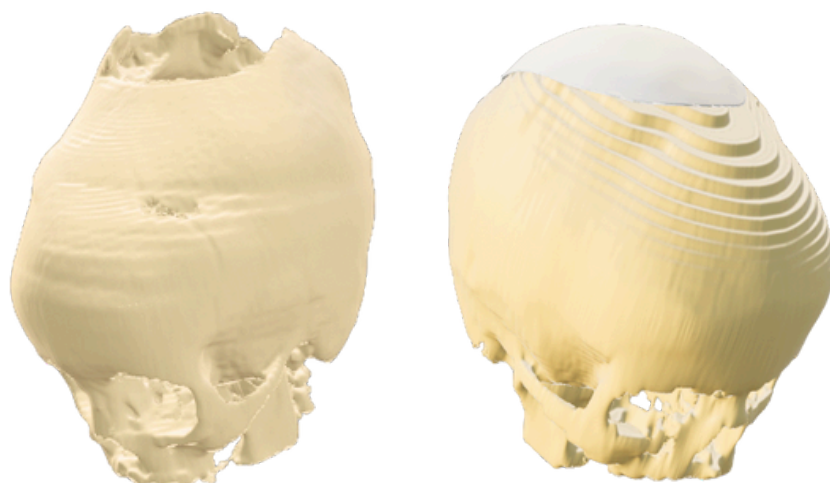




Bloocell® VR opens the door to a new era by making preoperative planning more precise and secure for surgeons.

3D models created from real case data reduce risks and increase success rates.

Personalized Three-Dimensional Design, Production and Clinical Application of Cranial Defects



CLINICAL STUDIES

- 1) Dogan, S. E., Ozturk, C., & Koc, B. (2025). Design of patient-specific mandibular reconstruction plates and a hybrid scaffold. *Computers in Biology and Medicine*, Elsevier 184, 109380.
- 2) Özdemir, E., Familiari, F., Huri, P. Y., Firat, A., & Huri, G. (2023). Use of 3D-printed polycaprolactone+ hyaluronic acid-based scaffold in orthopedic practice: report of two cases. *Journal of 3D Printing in Medicine*, 7(1), 3DP001.
- 3) EAODGI2023-543/PO-SU-026 | 3-dimensionalevaluation of E-polycaprolactone containing membrane's efficacy in guided bone regeneration: A retrospective study Cem Ungor¹, Cavad Bextiyarli², Seyit Yılmaz³
Oral and Maxillofacial Surgery, ²Karadeniz Technical University, Trabzon, ³Beykoz University, Istanbul, Turkey
- 4) Shi, Y., Liu, J., Yu, L., Zhong, L. Z., & Jiang, H. B. (2018). β -TCP scaffold coated with PCL as biodegradable materials for dental applications. *Ceramics International*, 44(13), 15086-15091.
- 5) Zhou, Y., Hutmacher, D. W., Varawan, S. L., & Lim, T. M. (2007). In vitro bone engineering based on polycaprolactone and polycaprolactone-tricalcium phosphate composites. *Polymer international*, 56(3), 333-342.
- 6) Okada, T., Kanai, T., Tachikawa, N., Munakata, M., & Kasugai, S. (2016). Long-term radiographic assessment of maxillary sinus floor augmentation using beta-tricalcium phosphate: analysis by cone-beam computed tomography. *International journal of implant dentistry*, 2, 1-9.
- 7) Koo, H. T., Oh, J., & Heo, C. Y. (2022). Cranioplasty Using Three-Dimensional-Printed Polycaprolactone Implant and Free Latissimus Dorsi Musculocutaneous Flap in a Patient with Repeated Wound Problem following Titanium Cranioplasty. *Archives of plastic surgery*, 49(06),740-744.
- 8) Morrison, R. J., Hollister, S. J., Niedner, M. F., Mahani, M. G., Park, A. H., Mehta, D. K., ... & Green, G. E. (2015). Mitigation of tracheobronchomalacia with 3D-printed personalized medical devices in pediatric patients. *Science translational medicine*, 7(285).
- 9) Park, Y. J., Cha, J. H., Bang, S. I., & Kim, S. Y. (2019). Clinical application of three-dimensionally printed biomaterial polycaprolactone (PCL) in augmentation rhinoplasty. *Aesthetic plastic surgery*, 43, 437-446.
- 10) Xu, Z., He, Z., Shu, L., Li, X., Ma, M., & Ye, C. (2021). Intra-articular platelet-rich plasma combined with hyaluronic acid injection for knee osteoarthritis is superior to platelet-rich plasma or hyaluronic acid alone in inhibiting inflammation and improving pain and function. *Arthroscopy: The Journal of Arthroscopic & Related Surgery*, 37(3), 903-915.
- 11) Zopf, D. A., Hollister, S. J., Nelson, M. E., Ohye, R. G., & Green, G. E. (2013). Bioresorbable airway splint created with a three-dimensional printer. *New England Journal of Medicine*, 368(21), 2043-2045
- 12) Al-Shammari, N. M., Shafshak, S. M., & Ali, M. S. (2018). Effect of 0.8% Hyaluronic Acid in Conventional Treatment of Moderate to Severe Chronic Periodontitis. *The journal of contemporary dental practice*, 19(5), 527-534.
- 13) Shalash, M. A., Rahman, H. A., Azim, A. A., Neemat, A. H., Hawary, H. E., & Nasry, S. A. (2013). Evaluation of horizontal ridge augmentation using beta tricalcium phosphate and demineralized bone matrix: a comparative study. *Journal of clinical and experimental dentistry*, 5(5), e253.
- 14) Suchánek, J., Ivančáková, R. K., Mottl, R., Browne, K. Z., Pilneyová, K. C., Pilbauerová, N., ... & Suchánková Kleplová, T. (2019). Hyaluronic acid-based medical device for treatment of alveolar osteitis—clinical study. *International journal of environmental research and public health*, 16(19), 3698.
- 15) Kim, Y. K., Lee, K. B., Kim, S. Y., Jang, Y. S., Kim, J. H., & Lee, M. H. (2018). Improvement of osteogenesis by a uniform PCL coating on a magnesium screw for biodegradable applications. *Scientific Reports*, 8(1), 13264.
- 16) Zerbo, I. R., Bronckers, A. L., De Lange, G. L., Burger, E. H., & Van Beek, G. J. (2001). Histology of human alveolar bone regeneration with a porous tricalcium phosphate: a report of two cases. *Clinical oral implants research*, 12(4), 379-384.
- 17) Kim, Y. C., Yoon, I. A., Woo, S. H., Song, D. R., Kim, K. Y., Kim, S. J., ... & Choi, J. W. (2022). Complications arising from clinical application of composite polycaprolactone/bioactive glass ceramic implants for craniofacial reconstruction: a prospective study. *Journal of Cranio-Maxillofacial Surgery*, 50(12), 863-872.
- 18) Park, H., Choi, J. W., & Jeong, W. S. (2022). Clinical application of three-dimensional printing of polycaprolactone/beta-tricalcium phosphate implants for cranial reconstruction. *Journal of Craniofacial Surgery*, 33(5), 1394-1399.
- 19) Yu, D., Peng, W., Mo, X., Zhang, Y., Zhang, X., & He, J. (2022). Personalized 3D-printed bioresorbable airway external splint for tracheomalacia combined with congenital heart disease. *Frontiers in Bioengineering and Biotechnology*, 10, 859777.
- 20) Zhao, H., Ren, R., Bao, S., Qian, W., Ma, X., Wang, R., & Shi, J. (2023). Efficacy and safety of polycaprolactone in treating nasolabial folds: A prospective, multicenter, and randomized controlled trial. *Facial Plastic Surgery*, 39(03), 300-306.
- 21) An evaluation of 0.2% hyaluronic acid gel (Gengigel®) in the treatment of gingivitis: a clinical & microbiological study Vishal N Sahayata, Neeta V
- 22) Cleft Alveolus Reconstruction Using a Three-Dimensional Printed Bioresorbable Scaffold With Human Bone Marrow Cells Won Soo Yun, Ui-Lyong Lee 2018, *The Journal of Craniofacial Surgery*

CLINICAL STUDIES

23) Yeo, A., Wong, W. J., & Teoh, S. H. (2010). Surface modification of PCL-TCP scaffolds in rabbit calvaria defects: Evaluation of scaffold degradation profile, biomechanical properties and bone healing patterns. *Journal of Biomedical Materials Research Part A: An Official Journal of The Society for Biomaterials, The Japanese Society for Biomaterials, and The Australian Society for Biomaterials and the Korean Society for Biomaterials*, 93(4), 1358-1367.

24) Efficacy and safety of polycaprolactone in treating nasolabial folds: a prospective, multicenter, randomized controlled trial Hongyi Zhao, Rongxin Ren, Shiwei Bao, Wenjiang Qian, Xiaobing Ma, Ruiyan Wang, Xiaoxin Li, Rouyu Fang, Qiuning Sun, Yan Tian, Chaonan Zhu, and Jianling Shi 2022, *Evidence Based Medicine in Facial Plastic Surgery*

25) Cranioplasty Using Three-Dimensional-Printed Polycaprolactone Implant and Free Latissimus Dorsi Musculocutaneous Flap in a Patient with Repeated Wound Problem following Titanium Cranioplasty Hee Tae Koo, Jeongseok Oh, Chan Yeong Heo 2022, *Archives of Plastic Surgery*

26) Clinical Application of Three-Dimensional Printing of Polycaprolactone/Beta-Tricalcium Phosphate Implants for Cranial Reconstruction Hojin Park 1, Jong Woo Choi, Woo Shik Jeong 2022, *Journal of Craniofacial Surgery*

27) Improvement of osteogenesis by a uniform PCL coating on a magnesium screw for biodegradable applications Yu-Kyoung Kim, Kwang-Bok Lee, Seo-Young Kim, Yong-Seok Jang, Jin Hyeok Kim, Min-Ho Lee 2018, *Scientific Reports*

28) Clinical Application of Three-Dimensionally Printed Biomaterial Polycaprolactone (PCL) in Augmentation Rhinoplasty Young Jin Park, Jong Hyun Cha, Sa Ik Bang & So Young Kim 2019, *Aesthetic Plastic Surgery*

29) Personalized 3D-Printed Bioresorbable Airway External Splint for Tracheomalacia Combined With Congenital Heart Disease Di Yu, Wei Peng, Xuming Mo, Yuxi Zhang, Xing Zhang, Jiankang He 2022, *Frontiers in Bioengineering and Biotechnology*

30) Hyaluronic Acid-Based Medical Device for Treatment of Alveolar Osteitis—Clinical Study Jakub Suchánek, Romana Koberová Ivančáková, Radovan Mottl, Klára Zoe Browne, Kristýna Charlotte Pilneyová, Nela Pilbauerová, Jan Schmidt, Tereza Suchánková Kleplová 2019, *International Journal of Environmental Research and Public Health*

31) Bioresorbable Airway Splint Created with a Three-Dimensional Printer David A Zopf, Scott J Hollister, Marc E Nelson, Richard Ohye 2013, *The New England Journal of Medicine*

32) Mitigation of tracheobronchomalacia with 3D-printed personalized medical devices in pediatric patients Robert J Morrison, Scott J Hollister, Matthew F Niedner, Maryam Ghadimi Mahani, Albert H Park, Deepak K Mehta, Richard G Ohye, Glenn E Green 2015, *Science Translational Medicine*

33) Preclinical and Clinical Studies of Hyaluronic Acid in Wound Care: A Case Series and Literature Review Schneider HP, Landsman A 2019, *Europe PMC*

34) Complications arising from clinical application of composite polycaprolactone/bioactive glass ceramic implants for craniofacial reconstruction Young Chul Kim, In Ah Yoon, Soo Hyun Woo, Dong Ryul Song, Ki Young Kim, Seon Jeong Kim, Woo Shik Jeong, Jong Woo Choi 2022, *Journal of Cranio-Maxillofacial Surgery*

35) Evaluation of horizontal ridge augmentation using beta tricalcium phosphate and demineralized bone matrix: A comparative study Mahmoud A. Shalash,1 Hatem A. Rahman,2 Amr A. Azim,3 Amani H. Neemat,4 Hesham E. Hawary,5 and Sherine A. Nasry 2013, *Journal of Clinical and Experimental Dentistry*

36) Histology of human alveolar bone regeneration with a porous tricalcium phosphate. A report of two cases Zerbo 1, A L Bronckers, G L de Lange, G J van Beek, E H Burger 2001, *Clinical Oral Implants Research*

37) Long-term radiographic assessment of maxillary sinus floor augmentation using betatricalcium phosphate: analysis by cone-beam computed tomography Tsuneji Okada 1, Toru Kanai 2, Noriko Tachikawa 2, Motohiro Munakata 3, Shohei Kasugai 4 2016, *International Journal of Implant Dentistry*

38) Beta-tricalcium phosphate/type I collagen cones with or without a barrier membrane in human extraction socket healing: clinical, histologic, histomorphometric, and immunohistochemical evaluation Bozidar M. B. Brkovic, Hari S. Prasad, Michael D. Rohrer, George Konandreas, George Agrogiannis, Dragana Antunovic & George K. B. Sándor 2011, *Clinical Oral Investigations*

39) Clinical Application of 3D-Printed Patient-Specific Polycaprolactone/Beta Tricalcium Phosphate Scaffold for Complex Zygomatico-Maxillary Defects Woo-Shik Jeon, Young-Chul Kim, Jae-Cheong Min, Ho-Jin Park, Eun-Ju Lee, Jin-Hyung Shim and JongWoo Choi 2022, *Polymers*

40) An evaluation of 0.2% hyaluronic acid gel (Gengigel®) in the treatment of gingivitis: a clinical & microbiological study Vishal N Sahayata, Neeta V Bhavsar, Nilam A Brahmabhatt 2014, *Oral Health and Dental Management*

bloocell

the language of technology

BLOOCELL® HEALTH TECHNOLOGIES INDUSTRY AND TRADE JOINT STOCK COMPANY



BLOOCELL® TECHNOLOGY USA
17 ARCADIAN WAY SUITE 108 PARAMUS,
NEW JERSEY 07652



BLOOCELL® TECHNOLOGY UK LTD
C/O DIRENCH & CO 151
WEST GREEN ROAD, LONDON N15 5EA



İSTANBUL BIOSCAFFOLD PRODUCT CENTER
KULELİ MH. KOCAÇINAR SK. NO:10 BOĞAZIÇI KANDİLLİ
KAMPÜSÜ
ÜSKÜDAR/İSTANBUL, TÜRKİYE



SAKARYA R&D CENTER
ESEANTEPE MAH. AKADEMİYOLU SOKAK SAKARYA
TEKNOKENT D BLOK
SERDİVAN/SAKARYA, TÜRKİYE

www.bloocell.com

 <https://www.instagram.com/bloocell/>
 <https://www.twitter.com/bloocell>
 <https://www.linkedin.com/company/bloocelltechnology/>
 <https://www.youtube.com/@bloocelltechnology9630>
 <https://kandillihealth.i-sek.org/showroom/6>