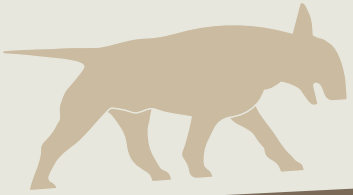
TRACERAY

Intelligent Veterinary Implants

ABOUT THE COMPANY



TRACERAY OY – ESTABLISHED IN APRIL 2015 AS A SPIN-OFF FROM THE RESEARCH ACTIVITIES AT THE UNIVERSITY OF TURKU IN FINLAND, CURRENTLY FOCUSES ON DESIGNING AND MANUFACTURING OF THE NOVEL FAMILY OF INTELLIGENT BIOACTIVE IMPLANTS FOR SMALL AND LARGE ANIMALS. ALL TECHNOLOGIES DEVELOPED AND OWNED BY THE COMPANY.

OUR MISSION IS TO AID SMALL AND LARGE ANIMALS SUFFERING FROM BONE AND LIGAMENTS DISORDERS.

Attention to feelings is a natural part of our lives. By understanding the experiences of other beings at a deep level, we open up to the world, and every day we become a little better. Our products take into account not only the physiology, but also the emotions of a pet, to ensure their cheerful mood, which will make them feel comfortable.

CORE TEAM

Julia Kulkova

DDS (specialist in surgical periodontology), PhD, Adjunct Professor, Industrial Designer
Co-founder and CEO

The major driving force behind the IPR and overall business development. Julia takes part in every stage of TraceRay`s development, as she has a vast expertise in clinical aspects, biomaterials, design of medical devices and R&D process. In 2017, she successfully completed an executive course in International Business Development organised by École des hautes études commerciales de Paris (H.E.C. Paris), one of the most prominent business schools in the world. Julia has a vast expertise in entrepreneurship, project management and over 10 years of leadership experience and product development strategic planning. In addition, Julia holds a title of Adjunct Professor in Design and Manufacturing Technologies for Biomedical Implants.

Niko Moritz

MSc, PhD, Adjunct Professor
Co-founder and CTO

Has a vast experience of 10 years in medical R&D. Moreover, Niko has a significant track of records in research related to the company activities with more than 60 scientific publications. Niko holds a title of Adjunct Professor in Orthopaedic Biomechanics and Imaging and university lecturer position in Biomaterials Science at the Department of Biomaterials Science at the University of Turku.

CLINICAL EXPERTISE

Orthopaedic surgeons who help us in the development of new products.

OPINION LEADER

Gareth Arthurs

PGCertMedEd MA VetMB CertVR CertSAS DSAS(Orth) FHEA FRCVS
RCVS Recognised Specialist in Small Animal Surgery (Orthopaedics)

Professor of Small Animal Orthopaedic Surgery

Graduated from Cambridge University Veterinary School.
Consultant Orthopaedic Surgeon, Arthurs Veterinary Specialists, Professor of Small Animal Orthopaedic Surgery, University of Nottingham School of Veterinary Medicine and Science and Consultant for Veterinary Instrumentation Ltd.

Gareth worked at a number of specialist centers including Cambridge University Veterinary School, Willows Referral Service and the Royal Veterinary College. Gareth is a past chairman of the British Veterinary Orthopaedic Association. He is a European board member of AOVET international, and is also a member of AOVET's International Research and Development commission.

CONTRIBUTORS

Orthopaedic surgeons who help us in the development of new products.

Pauli Keränen

DVM, PhD, Specialist in Small Animal Diseases

Pauli is one of the leading experts in small animal deseases in Finland. Currenty, he acts as a clinical instructor at the department of Equine and Small Animal Medicine, Faculty of Veterinary Medicine, University of Helsinki, Finland. Apart from the clinical practice, Pauli is involved in teaching and research activities as a supervisor for doctoral programme, Doctoral Programme in Clinical Veterinary Medicine.

Esa Kesti

DVM, Small Animal Surgeon

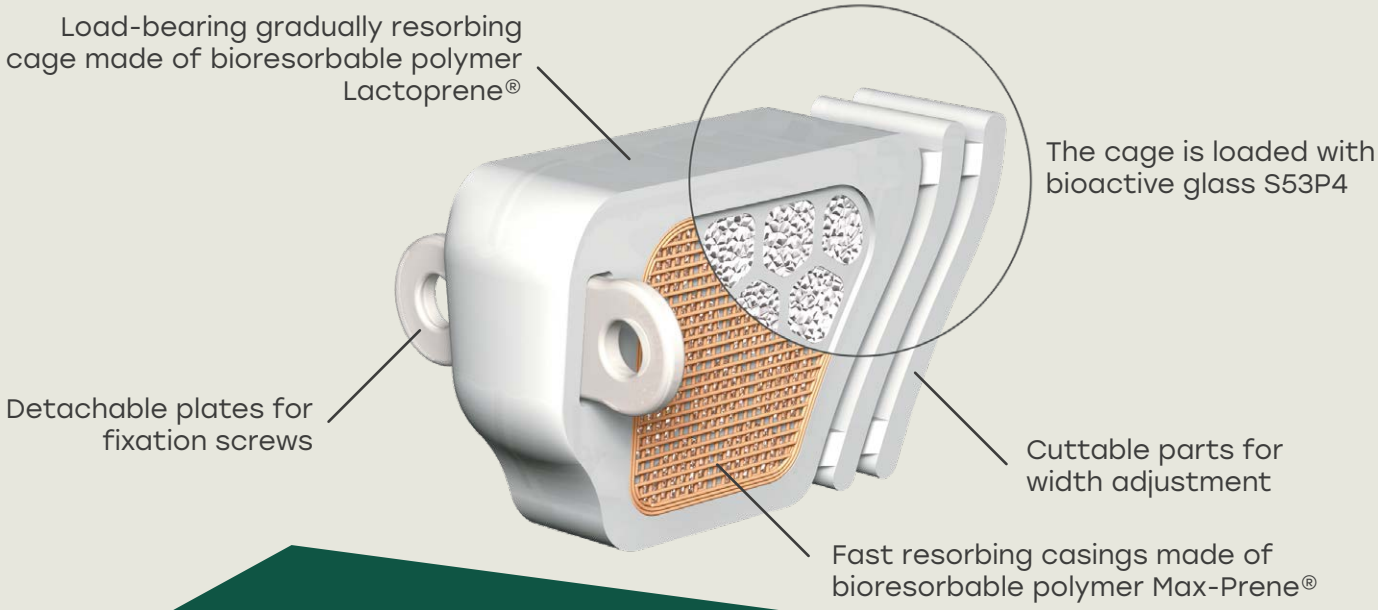
Esa is one of the leading expets in TTA surgical procedure in Finland. Graduated from the Faculty of Veterinary Medicine of the University of Helsinki. Co-founder, partner and CEO of Veterinary clinic of Kouvola (associated with Evidensia, Finland). Former medical director of Evidensia, Finland.

Mikael Granholm

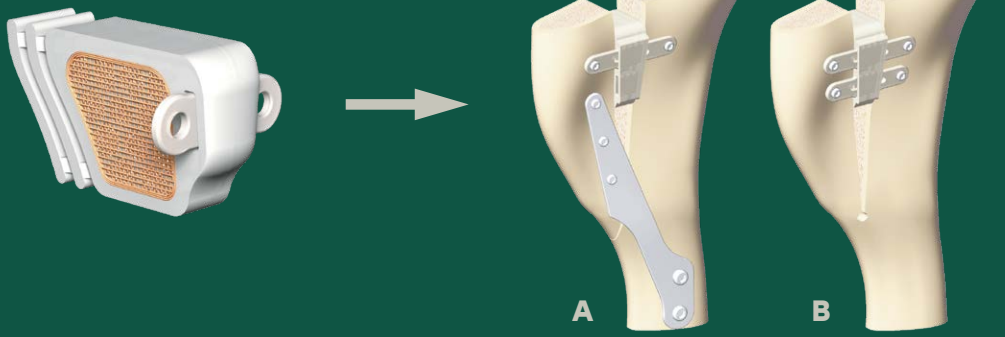
DVM, Small Animal Surgeon

Graduated from the Faculty of Veterinary Medicine of the University of Helsinki. Mikael is experienced in all aspects of small animal orthopaedic surgery. Specialist in TTA and TPLO procedures CEO of veterinary clinic Vettori (associated with Evidensia, Finland) in Raisio, Turku area.

BIOACTIVE BIORESORBABLE IMPLANT FOR TIBIAL TUBEROSITY ADVANCEMENT (TTA)



- A family of standard bioactive bioresorbable implants for knee reconstruction in dogs and cats.
- TRACERAY proprietary technology: patents granted in EU and USA.
- Manufactured by 3D printing.
- Bioresorbable: cage resorbs within one year.
- Bioactive: bioactive glass promotes bone formation and prevents bacterial colonization.
- Full range of sizes, from 3 mm to 12 mm.
- Simple surgical procedure, no need for special instrumentation.



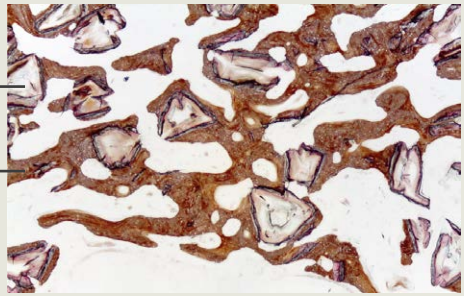
Typical surgical procedures

A Osteotomy with a cage and a tension band plate

B Osteotomy with a cage combined with plates

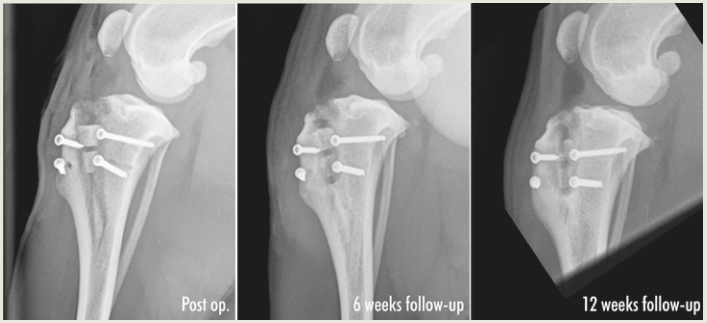
PRE-CLINICAL STUDY

Plyusnin et al. Res Vet Sci. 2020128:183-196.



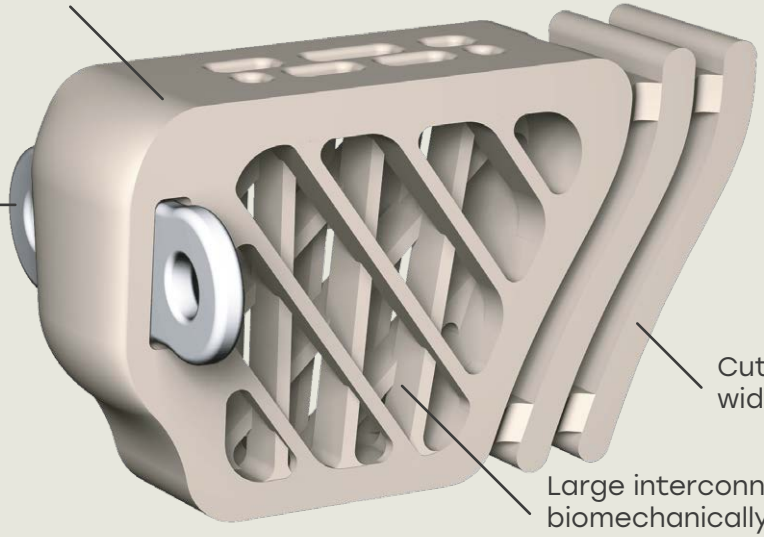
CLINICAL TRIAL

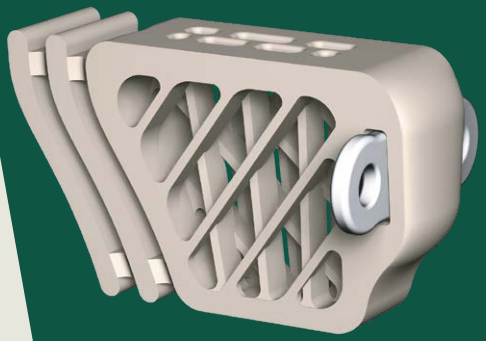
- The purpose is to establish the clinical evidence and generate data on safety and efficacy of novel bioactive bioresorbable TTA implants.
- The clinical trial is being implemented in three phases in collaboration with Veterinary Instrumentation Ltd in UK and Evidensia in Finland.
- Phase I included 8 dogs, Phase II included 7 dogs
- Results indicate that the novel bioactive bioresorbable TTA implants present a valid implant modality. Scientific poster was presented during the 2023 Annual Meeting of the Society For Biomaterials in San Diego, USA.
- Phase III is in progress.



Uneventful healing in male Bulldog

BIOSTABLE IMPLANT FOR TIBIAL TUBEROSITY ADVANCEMENT (TTA)

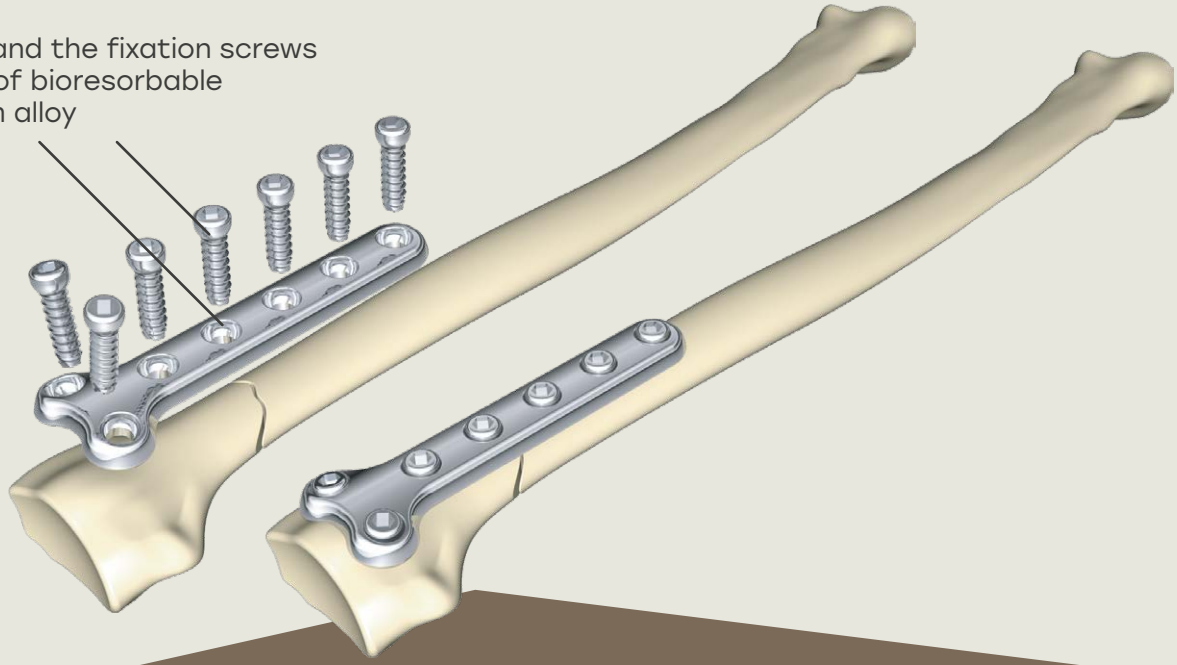




- A family of standard bioactive biostable implants for knee reconstruction in dogs and cats.
- Manufactured by 3D printing.
- Biostable: wedge will stay permanently in the body.
- Full range of sizes, from 3 mm to 12 mm.
- The fusion area can be left empty or loaded with autograft or an osteopromotive paste of surgeon´s preference.
- Bioactive: wedge is made of polyether-ether ketone (PEEK) loaded with Calcium Phosphate (CaP) to promote integration in the host bone.
- Simple surgical procedure, no need for special instrumentation.

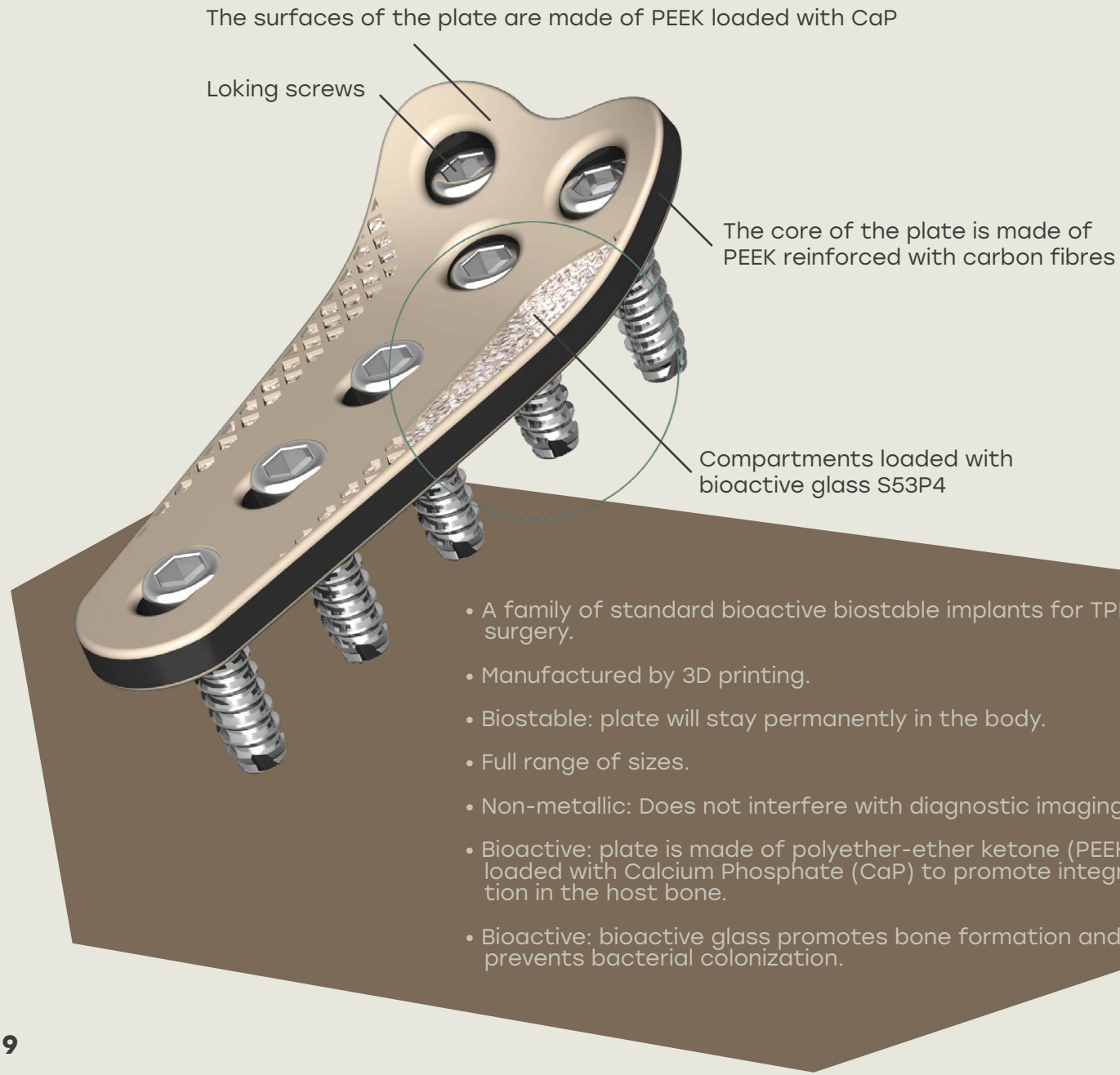
BIORESORBABLE FRACTURE FIXATION DEVICE IN TOY-BREED DOGS AND IN CATS

The plate and the fixation screws are made of bioresorbable Magnesium alloy



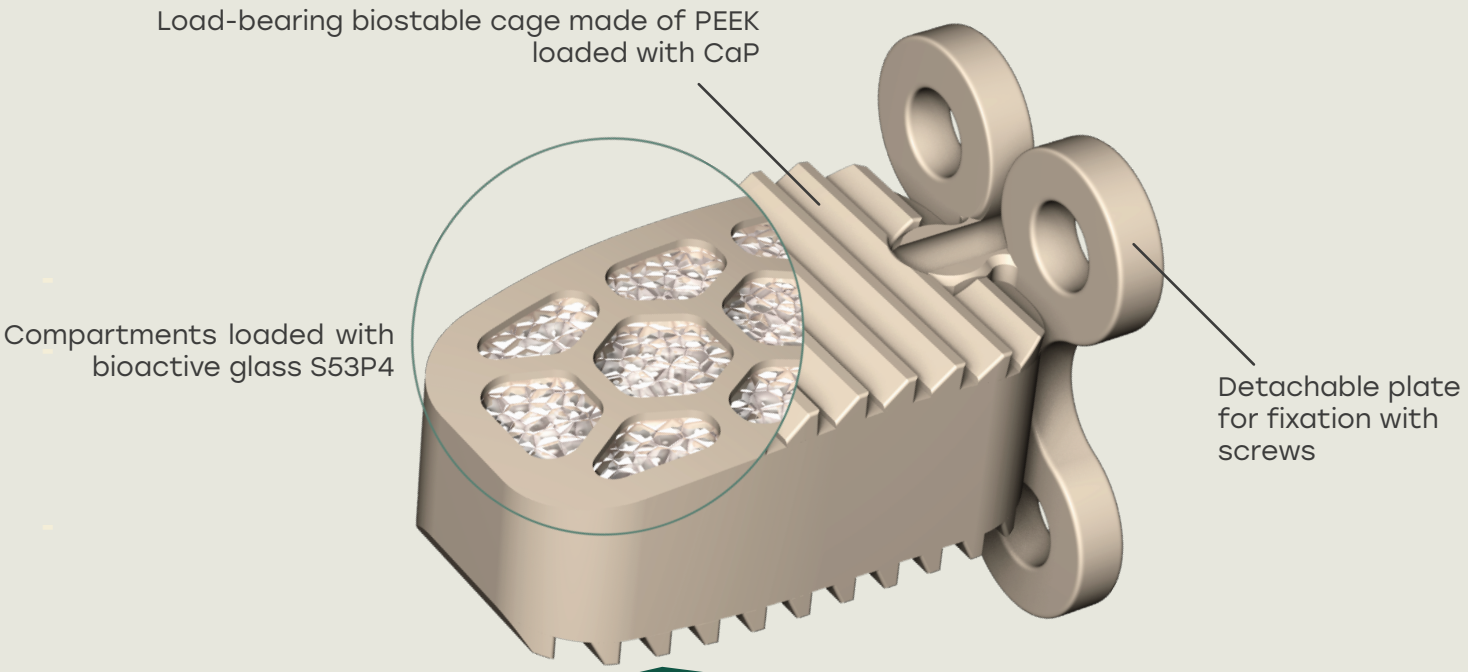
- Bioresorbable fracture fixation plates and screws for small animals.
- Manufactured of Magnesium alloy in collaboration with Bioretec Oy, Finland.
- The elasticity modulus of the alloy is closer to that of the cortical bone. This diminishes the risk of "stress-shielding" and adverse bone remodelling associated with this phenomenon.
- The material was originally developed for human patients and is approved for clinical use.
- The implants will retain load bearing during the fracture healing process and be excreted from the body within one year.

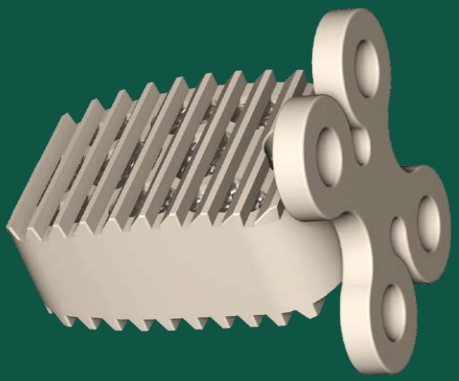
BIOSTABLE PLATE FOR TIBIAL PLATEAU LEVELING OSTEOTOMY (TPLO)



- A family of standard bioactive biostable implants for TPLO surgery.
- Manufactured by 3D printing.
- Biostable: plate will stay permanently in the body.
- Full range of sizes.
- Non-metallic: Does not interfere with diagnostic imaging.
- Bioactive: plate is made of polyether-ether ketone (PEEK) loaded with Calcium Phosphate (CaP) to promote integration in the host bone.
- Bioactive: bioactive glass promotes bone formation and prevents bacterial colonization.

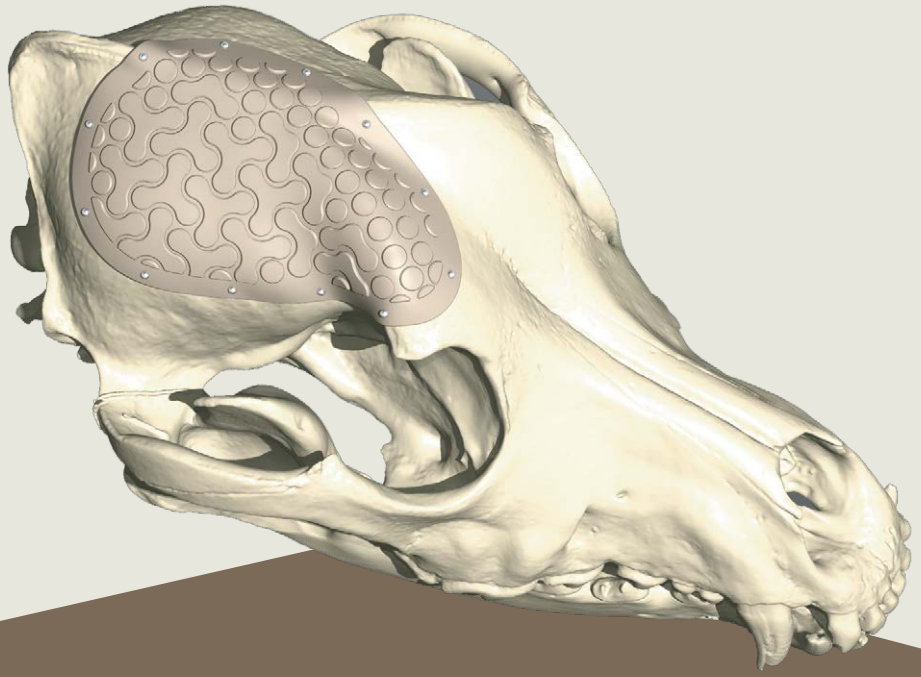
BIOSTABLE CAGE FOR SPINAL SURGERY

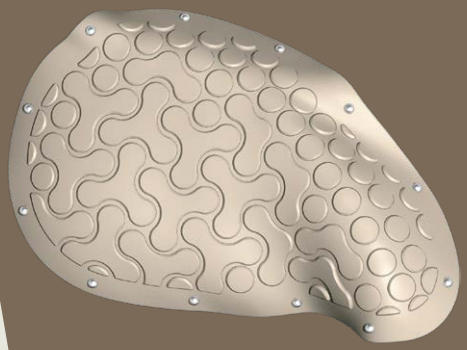




- A family of standard bioactive biostable implants for intervertebral distraction fusion.
- Manufactured by 3D printing.
- Non-metallic: Does not interfere with diagnostic imaging.
- Bioactive: cage is made of polyether-ether ketone (PEEK) loaded with Calcium Phosphate (CaP) to promote integration in the host bone.
- Bioactive: bioactive glass promotes bone formation and prevents bacterial colonization.

PATIENT-SPECIFIC VETERINARY IMPLANTS AND NON-IMPLANTABLE DEVICES





- TraceRay has a vast expertise in designing and manufacturing of Patient Specific Implants (PSI).
- As subcontractor, TraceRay has designed over 600 PSIs.
- TraceRay has all the necessary expertise and tools required for the in-house designing and manufacturing of non-metalic biostable and bioresorbable PSIs from processing tomographic data to the fabrication of PSIs using proprietary technology and modern additive manufacturing equipment.
- TraceRay manufactures surgical guides and 3D-printed bones for planning of surgical procedures.
- TraceRay is also representing Bioretec Oy on the veterinary market. Bioretec manufactures bioresorbable pins, nails and cannulated screws.

bioretec

IPR AND AWARDS

- European patent EP3370792B1 granted in April 2020.
- US patent US2018/0318088 granted in July 2022.
- TraceRay was awarded Go Global Awards best Medtech 2022 by the International Trade Council

CONTACT:

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