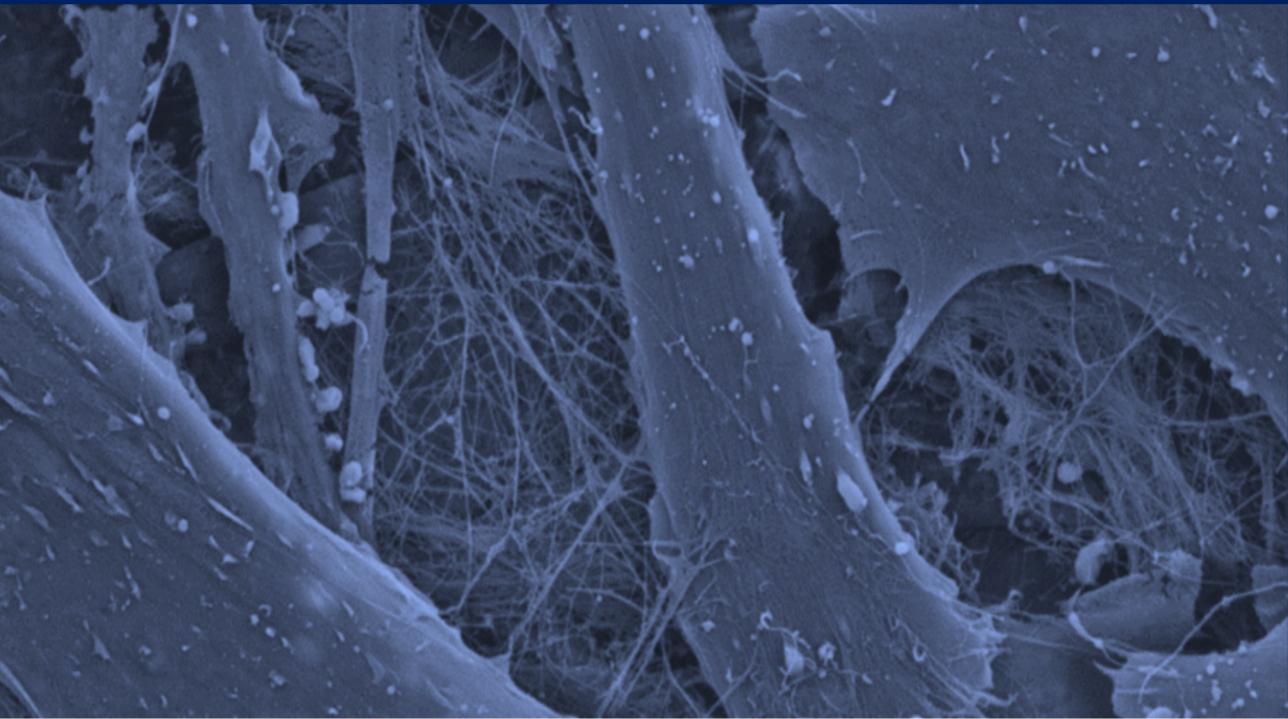


# stimOS

## MBT Technology





Golden Standard Technologies:

Inspired by nature. Made by stimOS.

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There are **too many surface treatments** on the market...

... using **different technologies** and addressing various needs.



Golden Standard Technologies:

Inspired by nature. Made by stimOS.

### MBT - Mimicking Bone Technology:

Inspired by nature.

Developed by stimOS.

Protected by international patents.

Made for the benefit of patients.

Developed according S.P.E.L. standard.

Fully transparent.

Fully aligned with MDR requirements.

ISO 13485:2016 certified.

Awarded with the quality seal S.P.E.L.

But there is **one solution:**

based on **one bio-chemical principle,**

using **one technology,**

**addressing ALL important market needs.**

**stimOS**

**Mimicking Bone Technology**

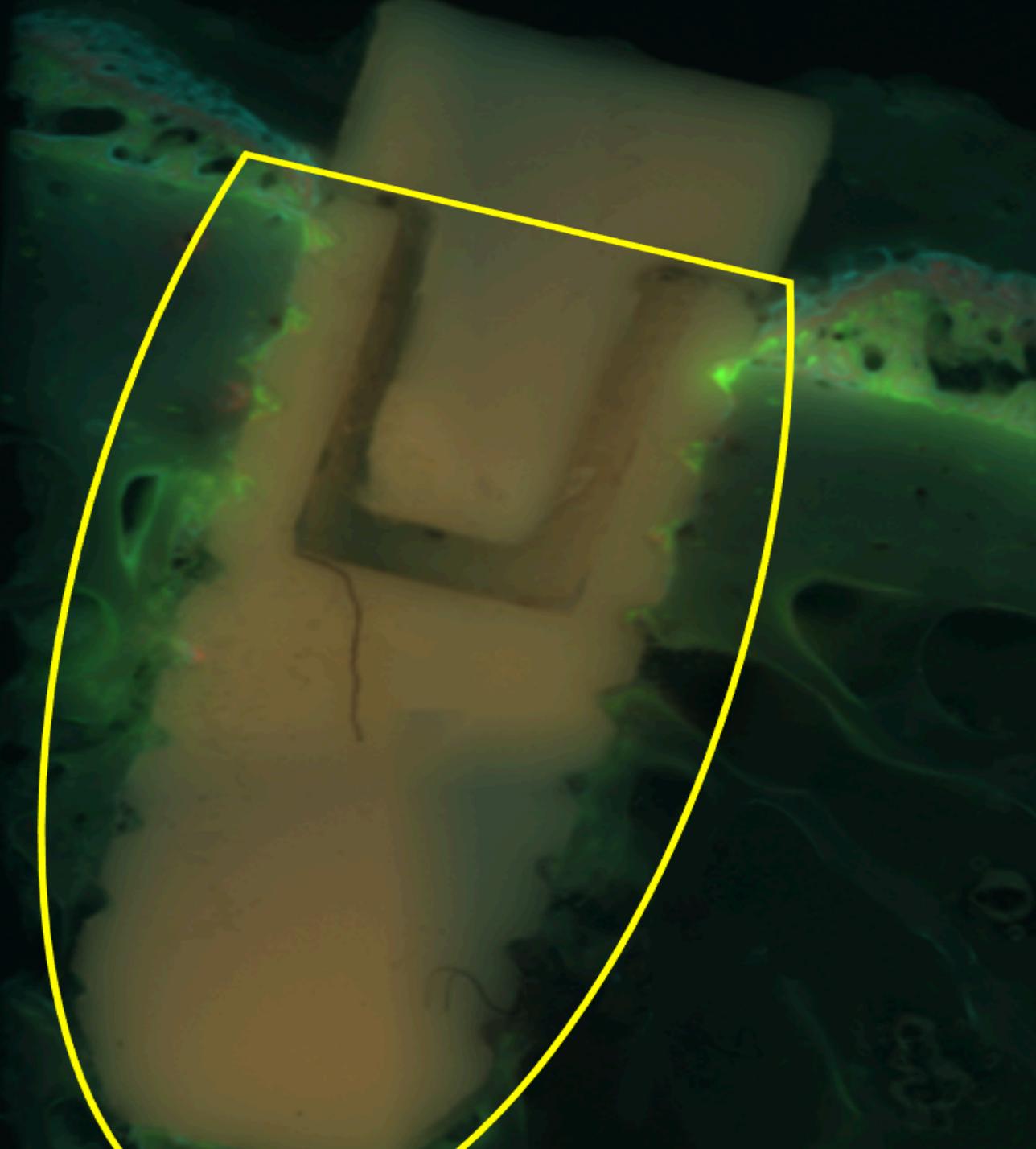
MBT is **one** technology concept addressing the **most important** needs of surgeons and patients demanding for high-performance implant materials to be used in **spinal, dental, CMF and other orthopedic applications.**

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MBT<sup>osseo</sup> is our patented surface functionalization technology. stimOS developed a covalently bonded 3D continuous biomimetic surface layer, specifically designed for inert implant materials. This development exhibits excellent combinations of surface free energy and mechanical stability. The combined implant and surface functionalization (MBT) shows high cyto-tolerance for bone constitution and ingrowth of bone cells. MBT is (a) biocompatible, (b) avoids infections, (c) preserves healthy bone, (d) stimulates new bone formation, and results in an (e) overall high BIC (bone-to-implant contact), superior to all currently known surface materials or coating technologies.

Picture right: Healthy bone surrounds the freshly placed implant in-vivo only two weeks after the operation.

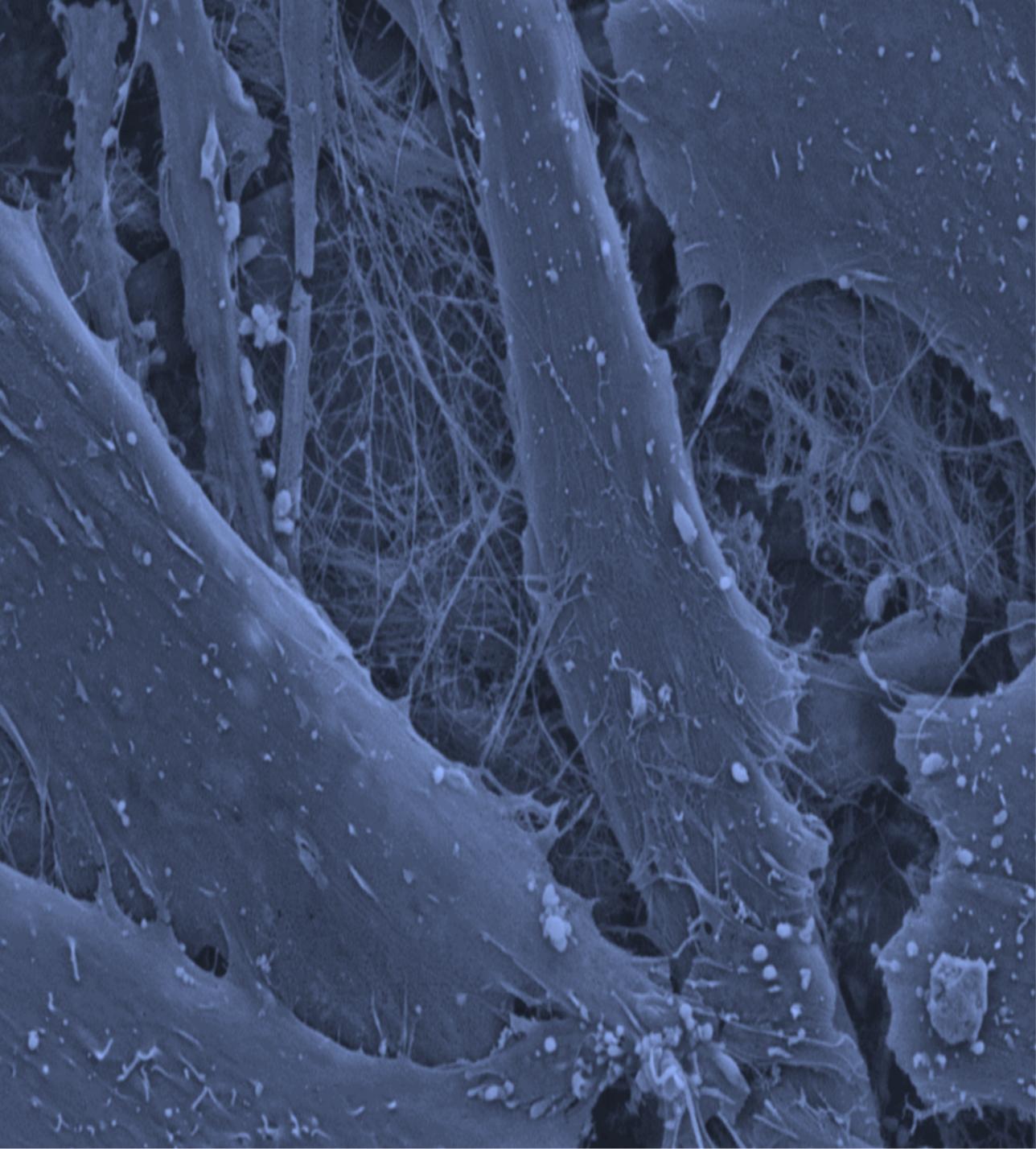


MBT <sup>biocide</sup> is our patented, antibacterial variant combining both, superior osseointegrative characteristics with antibacterial properties.

MBT <sup>biocide</sup> must be the surgeon's preventive choice if a risk for infection is already known for certain applications. MBT <sup>biocide</sup> is based on the biomimetic principles of osseointegration, combined with antibacterial properties, inspired by nature.

MBT <sup>biocide</sup> does not incorporate any pharmaceutical components.

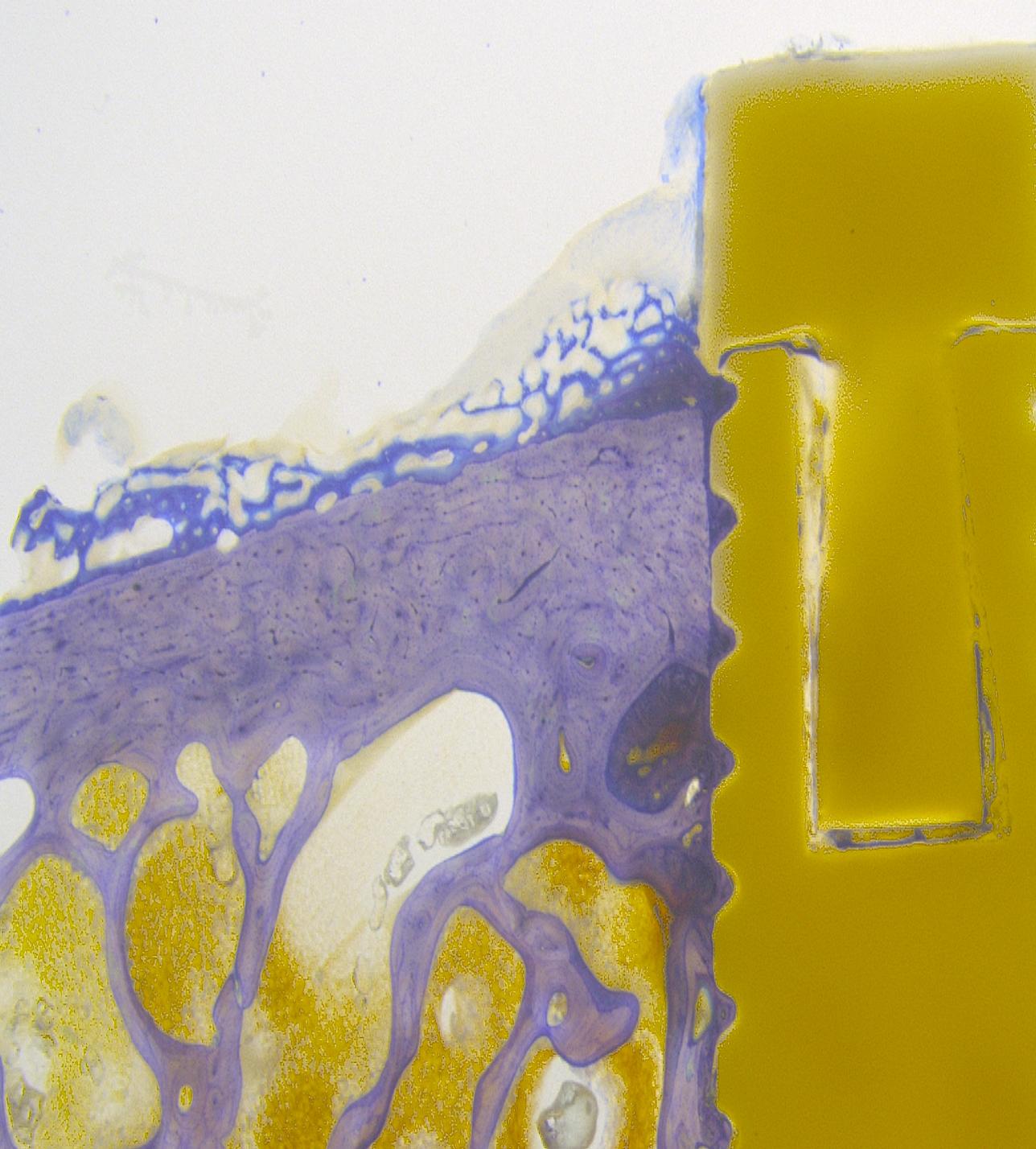
Picture right: In vitro cell tests proved that after 12 hours a dense cell layer occupies the implant, and collagen fibrils are formed.



MBT<sup>protect</sup> is our patented anti-corrosion variant, combining both, superior osseointegrative features with protection against corrosion. In the case of medical implants and prosthetics, wear debris and ion release occurring due to the loss of material caused by bio-tribo corrosion of implant surfaces result in tissue inflammatory reactions.

MBT<sup>protect</sup> avoids this corrosion and enhances the implant's osseointegrative characteristics using one bio-inspired surface modification.

Picture right: All MBT surface treatments result in a dense BIC that surrounds and firmly anchors the entire implant.



MBT<sup>active</sup> is the variant of MBT surface functionalization, that offers the possibility of introducing active ingredients and drugs into the patient's body together with the implant and directly to the place where it is needed. As a patient-specific surface functionalization, drug delivery and its release can be controlled by MBT<sup>active</sup>.

As a borderline product, the implant must be specifically evaluated depending on which function is the primary one: The mechanical functionality of the implant or the pharmaceutical characteristics of the active ingredient. **Talk to us: Together, we will define the intended use and the approval strategy for your customized product.**

Picture right: MBT surfaces always build porous structures that guarantee best anchoring, conditions and nutritions for bone cells growing on the implant's surface.



MBT<sup>dental</sup> is the surface functionalization technology for dental applications. Based on hyaluronic acid it provides optimal conditions for implants placed in the jaw.

MBT<sup>dental</sup> and all other variants of MBT technology family have been tested in cooperation with Charité Berlin and the University of Zurich. Testing was carried out in a comparative in-vitro and in-vivo setting comparing the surfaces of Titanium, HA-enhanced PEEK, PEEK and MBT technology. Both in-vivo and in-vitro MBT proved its superiority compared to currently available benchmark technologies.



**MBT<sup>biocide</sup>**  
Bio-inspired, non-toxic, antibacterial implant coating.  
Patent protected

**MBT<sup>protect</sup>**  
For all metal implants, preventing corrosion and ion release.  
Patent protected

**MBT<sup>dental</sup>**  
Providing stable anchorage for dental PEEK implants.  
Patent protected

**MBT<sup>osseo</sup>**  
for all kind of implants that need osseointegration.  
Patent protected

**MBT<sup>active</sup>**  
Drug delivery directly to the intended part of the human body.  
Patent pending



Implants that do not heal in the patient's body often need to be replaced. These additional procedures are not uncommon and additionally burden the health of the patient, which is already weak: German Society for Implantology reports about 160.000 dental implants that must be replaced per year as they do not heal properly. German AOK states that 40% of all spine surgeries end in a revision. According to the German Federal Bureau of Statistics, more than 16.000 artificial hips and 26.000 artificial knees per year must be re-operated and replaced because the implants do not anchor or heal in properly.

**MBT will play a crucial role in avoiding revisions due to failed operations: This is the focus of stimOS specialists.**

The problem of implant loosening and inflammatory reactions due to inert implant materials is already known for a long time: Until now this problem was not addressed successfully.

**MBT will be the game changer.**

stimOS GmbH has developed a unique biochemical procedure that initiates early and healthy bone formation, gives best anchorage also in osteoporotic bone, and can be described as anti-inflammatory. The company's mission is to transform implant surfaces from an artificial barrier in the patient's body into a bone-identical implant body interface to avoid inflammatory reactions, infections and re-operations.

**You need NO COATING.**  
**You need MBT.**