ROXOLID™ – THE NEW “DNA” OF IMPLANT MATERIALS

SCIENTIFIC OVERVIEW
IMPROVING CLINICAL STANDARDS

Roxolid™ is the first material exclusively designed to meet the needs of dental implantologists. It is a unique new implant material with the acclaimed SLActive® surface. Roxolid™ and SLActive® combine strength with reliability. Roxolid™ is yet another example of Straumann’s efforts to continuously improve clinical standards for better patient care.

MATERIAL COMPOSITION

- Metallic alloy with homogenous structure
- Composed of titanium and zirconium

MATERIAL STRENGTH

- Higher strength compared to annealed 2 and cold worked titanium 3 (Fig. 1).
- Roxolid™’s outstanding mechanical properties mean small implants are now more reliable and provide more treatment options

OSTEOBLAST REACTION

- Titanium and Zirconium, the components of Roxolid™, do not inhibit osteoblast cell growth (Fig. 2). 5
- The inhibition of osteoblast cell growth for any metal other than titanium and zirconium suggests that these elements only have the capacity for osseointegration 6

Fig. 1: Ultimate tensile strength of ASTM titanium 2, cold worked titanium grade 4 3, and Roxolid™

Fig. 2: Titanium (Ti) and Zirconium (Zr) were the only metals that did not show some degree of growth inhibition for osteoblasts

“IF YOU REALLY WANT TO MAKE NARROW DIAMETER IMPLANTS, NEW MATERIALS WILL BE NEEDED.” ¹

Jan Gottlow, University of Goteborg
OSSEOINTEGRATION

- Preclinical study (at 4 weeks) comparing Roxolid™ SLActive® vs. Titanium SLActive®
- Roxolid™ implants show higher removal torque values (Fig. 3)
- Roxolid™ implants have more bone in-growth (Fig. 4)
- Similar bone to implant contact for both materials
- These results indicate an improvement even in comparison to a SLActive® surface on titanium

Fig. 3: Removal torque of Roxolid™ SLActive® (left) vs. Ti SLActive® (right)

Fig. 4: Histological analysis of bone structure with TiZr (left) and Ti (right) implants

"IF WE ARE GOING TO REDUCE DIAMETER WE NEED SOMETHING STRONG." ¹

Stephen Barter, Eastham Dental Institute

¹ "IF WE ARE GOING TO REDUCE DIAMETER WE NEED SOMETHING STRONG." — Stephen Barter, Eastham Dental Institute
CLINICAL PROGRAM

- Human studies running including over 300 patients and over 450 implants
- Over 2000 implants placed globally within a controlled market release
- More scientific programs are about to start to further pre-clinical and clinical studies
- Preliminary results of these studies show very promising results

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