

# implants

international magazine of oral implantology

1 2016

## research

Basic evaluation of an antimicrobial gel for peri-implantitis treatment

## case report

The indispensable use of CBCT in the posterior mandible

## industry

Automatic crestal sinus lift by motorised impaction device

dentis

It is not a trick. It is  
legendary science.  
Discover the magic of  
the tapered standard.

Designed for excellent primary stability thanks to an apically tapered implant with groundbreaking material and surface technology for maximizing predictability.

The Bone Level Tapered Implant – the new tapered standard. Engineered in Switzerland, home of Straumann.

<http://blt.straumann.com>



Material



Surface



# Exploring new grounds



Dr Rolf Vollmer

Dear colleagues,

for more than 46 years, further education has been a topic dear to the hearts of DGZI's editorial board. Already since its foundation in 1970, DGZI has contributed considerably to the education of our colleagues, especially by founding the DGZI study groups in 1990. These are small learning groups in which new techniques and case presentations are practiced.

Three years ago, our Young-Generation study group was founded, bringing a breath of fresh air to our learning groups. Starting in Cologne, Germany, and featuring another branch in Hamburg under the leadership of Dr Navid Salehi, who has since become a member of our extended board, the study groups have enriched the DGZI's field of activities. The heads of our study groups, Dr Umut Baysal and Dr Navid Salehi, have been supported by Dr Markus Quitzke in 2015. Their next step will be the foundation of another study group in Germany's capital Berlin, which is going to be led by Rabi Omari.

The foundation of the Berlin study group on 19 March 2016 at the Westin Grand Berlin Hotel surely is a highlight in 2016. Around 100 colleagues attended the founding assembly, illustrating the growing interest of our young colleagues in peer learning. Participants of this event received four further education points and the corresponding certificate.

Wishing you a both exciting and enlightening reading experience of this issue of implants: international magazine of oral implantology!\_

Warm regards,

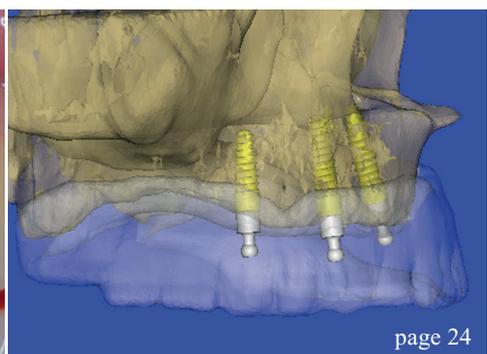
Dr Rolf Vollmer  
First Vice President and Treasurer of the German Association of Dental Implantology



page 6



page 16



page 24

| editorial

03 Exploring **new grounds**  
Dr Rolf Vollmer

| research

06 Basic **evaluation** of an **antimicrobial** gel for **peri-implantitis** treatment  
Dr Georg Bach & Christian Müller

16 **Lateral maxillary incisor** implant—  
Key issues for **aesthetic success**  
Drs Philippe Russe & Patrick Limbour

24 Maxillary **implant** supported removable or fixed **prostheses**  
Dr Scott D. Ganz

| case report

30 The **indispensable** use of CBCT in the posterior mandible  
Souheil Hussaini

| industry

36 **Automatic** crestal **sinus lift** by motorised impaction device  
Dr Georges Khoury & Dr Marc Revise

40 For a healthy start, **always** use a **new** healing abutment  
Dr Chandur Wadhvani & Steve Hurson

42 **Introducing** NucleOSS

| events

46 Where innovation comes to **life**

| news

44 **manufacturer news**

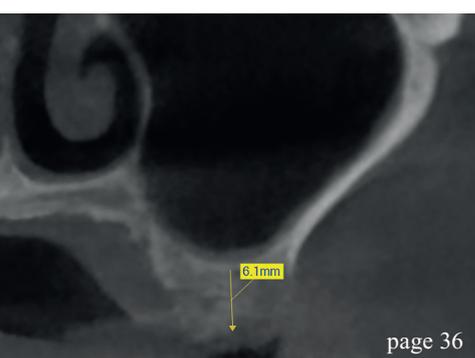
48 **news**

| about the publisher

50 imprint



Cover image courtesy of NucleOSS  
www.nucleoss.com



page 36



page 40



page 46

# Implant planning made easy

Planmeca PlanScan®

Planmeca ProMax® 3D

3<sub>3D</sub>X

**Planmeca Romexis® software** offers a completely integrated and digital workflow for modern implantology. From intraoral scanning to easy prosthetic design and realistic implant libraries, the most sophisticated implant planning tools are just a few clicks away.

- All the scanned and design data for prosthetic works is immediately available and can be mapped with the patient's CBCT data
- Use crown library or patient-specific crown from CAD system
- Verify the implant plan with verification tool
- Order surgical guide directly from the software
- Share data easily with partners through **Planmeca Romexis® Cloud** image transfer service



Find more info and your local dealer  
[www.planmeca.com](http://www.planmeca.com)

**PLANMECA**



Planmeca Oy Asentajankatu 6, 00880 Helsinki, Finland. Tel. +358 20 7795 500, fax +358 20 7795 555, sales@planmeca.com

# Basic evaluation of an antimicrobial gel for peri-implantitis treatment

**Authors:** Dr Georg Bach & Christian Müller, Germany

## Introduction

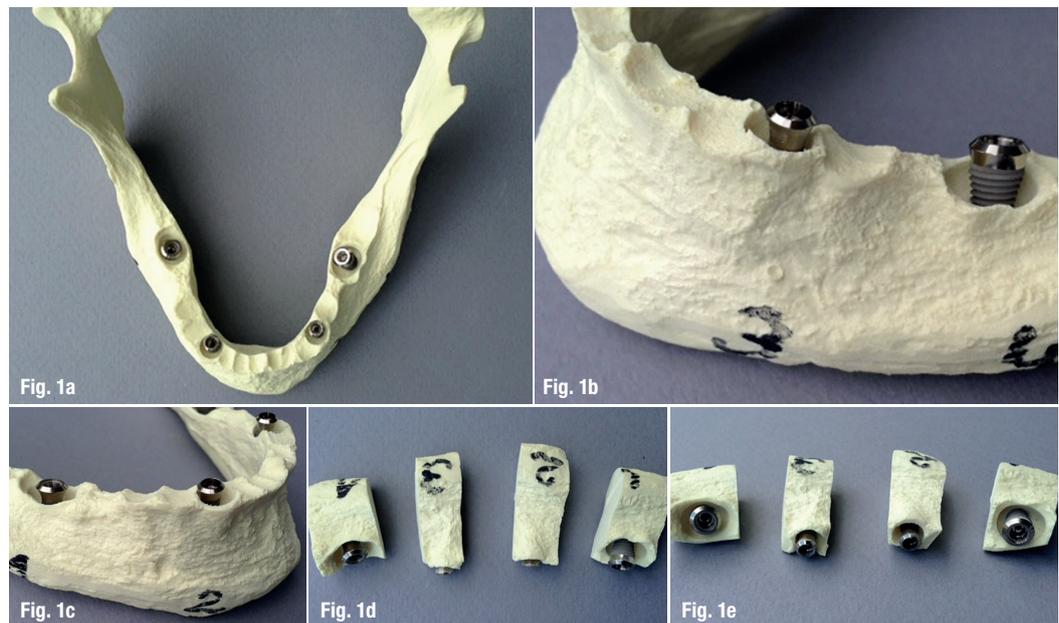
Early complications, which have been regarded as the major dread in the initial phase of oral implantology, have become a rare phenomenon for a fairly long time. Reasons for this positive development can be found in significant improvements of the implant surfaces, improved insertion techniques as well as in new ways to improve the prospective implant site.

Nevertheless, with the enormously increased number of inserted implants, a significant increase of late complications has meanwhile been recorded.<sup>1,4,12</sup> These complications typically manifest themselves many years after installation of the superstructure by means of peri-implant bone loss around artificial tooth pillars.<sup>17,20,21,25</sup> Often

associated with an insufficient or declining oral hygiene of the patient, these peri-implant lesions lead to the loss of the artificial tooth pillar and the corresponding suprastructure in case they are not treated.<sup>5,11,13,14</sup> Many authors regard the development of peri-implantitis therapies as one of the current key challenges of implantology.<sup>15,18–20,26</sup>

Cleaning and disinfection of the exposed implant areas represents an undeniable requirement. For the latter step the term "decontamination" has been generally established.<sup>3,16</sup> For decontamination, various methods are indicated for their suitability.<sup>3,6,8,16,21–24</sup> The aim of this study was to evaluate the suitability of using an antimicrobial gel for peri-implantitis treatment in an *in-vitro* experiment.

**Figs. 1a–e:** Peri-implant defect—  
 Simulated model: Crater-shaped defects were prepared in plastic jaws typically used for insertion exercises. Brand-new implants were placed in the middle of these defects in a way that at least three threads were exposed (a–c). The jaws were divided into smaller units (d & e) and autoclaved before conducting phase II examinations (bacterial cultivation—Perisolv application—Microbiological diagnostics etc.) in order to allow better fit into the furnace as well as in vials containing culture medium.



# Nobel Biocare Global Symposium

June 23–26, 2016 – New York

Where innovation comes to life



Register  
now

[nobelbiocare.com/global-symposium-2016](http://nobelbiocare.com/global-symposium-2016)

## An experience beyond the ordinary

The Nobel Biocare Global Symposium 2016 program will offer unparalleled clinical and scientific education, as well as in-depth hands-on training. Held at the Waldorf Astoria in New York, it's a unique opportunity to experience how innovation can come to life in your daily work.

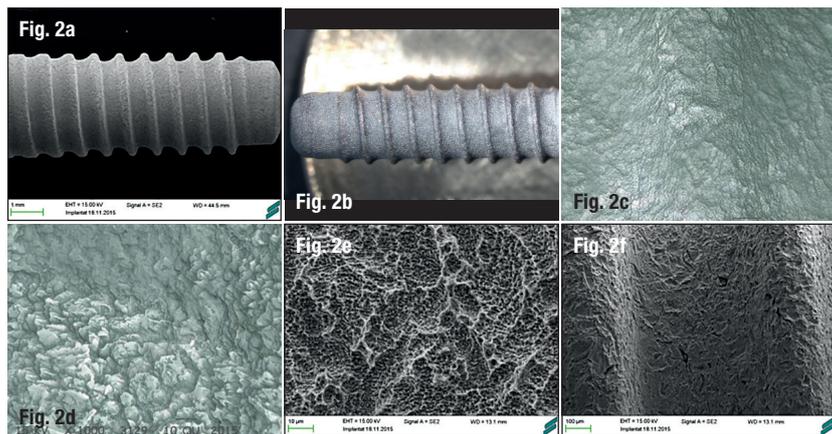
## Design your own learning experience

Choose from numerous lectures, forums, master classes and hands-on sessions – from over 150 of the best speakers and presenters in the world. This must-attend event will cover a vast variety of techniques and treatment solutions, from diagnosis to treatment completion. Don't miss this opportunity. Sign up now and we'll see you in New York!



[Read more about the Symposium](#)





**Figs. 2a–f:** SEM analysis: Brand-new, sterile implants were inoculated and incubated with a microbial suspension. **Figure 2a** shows a scanning electron micrograph of this starting material. **Figure 2b** shows the bacterial turf on an implant thus processed. After PerioSolv application, many areas showed a detached bacterial coating, the implant surface is virtually free from bacterial turf (**c & d**). These “exposed spots” feature an unchanged implant structure (**e & f**), therefore PerioSolv application does not alter the implant surface per se.

### Material and Methods

Two test phases were performed:

- a) Phase I: Decontamination procedure of brand-new sterile implants, which have been inoculated with bacteria and subsequently coated with antimicrobial gel.
- b) Phase II: Decontamination procedure of brand-new sterile implants placed in a plastic jaw with simulated bone defects after subsequent inoculation with bacteria and final exposure to antimicrobial gel.

#### Phase I: Decontamination procedure to implants inoculated with bacteria

To evaluate general suitability of the decontamination process, brand-new ITI implants (Institut Straumann AG, Basel, Switzerland) were microbiologically processed and analysed at the Institute for Medical Diagnostics Bioscientia (Freiburg, Germany).

#### Implant contamination—microbial procedure:

The implants were exposed and inoculated with a bacterial suspension (overnight cultures of *MRSA ATCC 33591*):

By means of sterile forceps, the implants were placed in 10 ml peptone yeast extract broth each. The tubes were incubated for 48 h at 36 °C and 5–10 % CO<sub>2</sub>. After 48 h of incubation, the liquid was removed by means of vacuum filtration and the implant was transferred back to the initial container with sterile forceps for immediate further process-

ing. Exclusively, implants with a medium bacterial growth were used for further examinations, implants with low or very low bacterial growth were excluded. Two test series were conducted with four implants each.

#### Decontamination procedure with contaminated whole implant bodies:

After completion of the microbiological work, three out of four implants were confronted with antimicrobial gel for two min in the sense of a decontamination procedure and immediately transferred to the Institute for microbiological analysis. One implant served as positive control, without conduction of the decontamination procedure.

- Antimicrobial Gel: An antimicrobial gel known for its application in periodontology was used (PERIO-SOLV, REGEDENT AG, Zurich, Switzerland). It is typically used for adjuvant cleaning and decontamination of the outer tooth root area and the surrounding tissue.<sup>10</sup> Furthermore, in the literature the gel is described to feature a softening effect towards degenerative tissue before debridement of periodontal pockets.<sup>9</sup> According to the manufacturer, the gel does not affect healthy tissue<sup>9</sup> and, however, features an antimicrobial effect.<sup>2,7</sup>
- Gel composition: The gel contains amino acids (glutamic acid, leucine and lysine), carboxymethyl cellulose, titanium dioxide as well as ultra pure water and features a pH value below 10. The transparent liquid represents a 0.95 % sodium hypochlorite solution and is admixed immediately before the application. After mixing hypochlorite and amino acids, so-called Chloramines (NCA), a short-lived active substance class, are formed. These substances are part of the body's own immune system.<sup>9</sup>
- Gel Preparation: The set (gel and liquid) is stored in the refrigerator. One hour prior to planned application, the set is removed from the refrigerator to allow the contents of the kit to warm up to room temperature. Both components (gel and liquid) are arranged in separate syringes and are connected by means of screwing (Luer-lock connection). Both components were thoroughly mixed by moving the stamps back and forth 10–15 times. The activated and operational gel was finally left in the transparent syringe. A non-invasive/blunt application tip is attached and the implants are coated with the gel.

**Table 1:** Results of Phase I.

Bacterial growth on implant		Implant 1	Implant 2	Implant 3	Implant 4 control
A:	MRSA	–	–	–	+++
B:	MRSA	–	+	–	+++



## BARCELONA DREAM TEAM MAKE IT SIMPLE

MIS is proud to introduce the Global Conference Speakers Team: Alexander Declerck • Anas Aloum • Andrea Pilloni • Arndt Happe • Björn-Owe Aronsson • Carles Martí-pagés • Carlo P. Marinello • Christian Coachman • David García Baeza • Eduard Ferrés-padró • Eli Machtei • Eric Van Dooren • Federico Hernández Alfaro • Florian Schober • France Lambert • Gabi Chaushu • Galip Gürel • Giulio Rasperini • Guillermo J. Pradies Ramiro • Gustavo Giordani • Hilal Kuday • Ignacio Sanz Martin • José E. Maté-sánchez De Val • José Nart • Juan Arias Romero • Korkud Demirel • Lior Shapira • Marco Esposito • Mariano Sanz Alonzo • Miguel Troiano • Mirela Feraru-Bichacho • Mithridade Davarpanah • Moshe Goldstein • Nardi Casap • Nelson Carranza • Nitzan Bichacho • Nuno Sousa Dias • Pablo Galindo-Moreno • Stavros Pelekanos • Stefan Koubi • Tommie Van de Velde • Victor Clavijo • Vincent Fehmer • Yuval Jacoby. To learn more about the conference visit: [www.mis-implants.com/barcelona](http://www.mis-implants.com/barcelona)

