

today

7



Gilles Pierson speaks

Acteon's Chief Executive Officer on his company's history, future strategies and what the company has to offer during Europerio 7.

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Science & Practice

Europerio speakers provide insights into quality control of periodontal therapy, vaccination against periodontitis and the complexity of microbiological infections.

»Pages 6–7



Dental products in focus

Europerio 7 will be an excellent opportunity to see state of the art technologies and achievements in the field of periodontology and dental implants.

»Pages 10 & 12

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IMPLANT CLEANING

MECTRON MULTIPIEZO PRO

The image shows the Mectron Multipiezo Pro ultrasonic scaler. On the left is the handpiece, which is white and blue. On the right is the control panel, which is black with various buttons and a digital display. The control panel has buttons for 'power', 'light', 'handpiece', 'function', 'endo', 'perio/scaler', 'restorative', 'soft mode', 'clean', 'auto', 'stop', and 'irrig'. The Mectron logo is visible on the control panel.

Seventh congress of the European Federation of Periodontology to present the latest research and cutting-edge technology



Perio implant event of the year starts in Vienna. (DTI/Photo johny007pan)

■ Dental professionals from all over Europe and abroad are expected to gather this morning at the Reed Exhibitions Congress Center in Vienna for the Europerio 7 congress. The scientific event, organised by the Austrian Society of Periodontology on behalf of the European Federation of Periodontology, will present the latest research and technology in the field of periodontology and dental implantology over the course of the next three days.

According to the organiser, Europerio 7 is aimed at both general practitioners and specialists. Over 100 speakers from Europe and overseas will be presenting the latest insights into the management and treatment of periodontal disease, as well as aspects of dental implant therapy, in over 60 lectures and workshops. A large number of sessions will be also dedicated to pre-existing medical conditions. In two of the main sessions (periodontal medicine, and risk factors and their management), reference will be made to important associations with diabetes, obesity and cardiovascular disease, the organiser said.

Scientific sessions will start this morning, with presentations on periodontal plastic surgery and new insights into the host re-

sponse in periodontitis. Parallel lectures on computer-guided treatment in dental implantology and dental hygiene will also be held.

In addition, research posters will be presented throughout the day. According to the organiser, over 1,300 abstracts have been submitted for Europerio 7, a 60 per cent increase compared with the last congress.

The event has received support by a number of major industry players, including Straumann, Philips, Acteon, MIS and Nobel Biocare, which have announced a number of seminars and corporate workshops to be held during Europerio 7. New products and technologies will be on display during the trade exhibition, which is joined by over 100 companies from around the globe.

“With particular emphasis on research that will address the global scientific community and give them a forum, my expectations for this conference and its acceptance are especially high,” congress chairman and board member of the Austrian Society of Periodontology, Dr Gernot Wimmer, told *Dental Tribune Austria*. “From a professional viewpoint, I am excited to see the

results of the attendance at our different events, as these evaluations will be vital for the planning of future congresses.”

This year is the seventh time that the congress is being organised by the European Federation of Periodontology in collaboration with one of its member periodontal societies. The federation, which is based in Madrid, was founded in 1991 in order to facilitate research in periodontology and dental implantology. Its main congress is held every three years in different host cities in Europe. The last congress in Stockholm in 2009 saw the attendance of over 6,600 visitors from 82 countries.

For more news from this year's Europerio in Vienna, please scan the QR code at the bottom right or visit www.dental-tribune.com/europerio7.

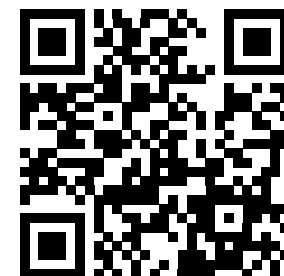
Colgate-Palmolive launches Oral Health Network

■ Dental consumables manufacturer Colgate-Palmolive has announced the launch of the Colgate Oral Health Network for Professional Education and Development—a new online resource dedicated to helping dental professionals improve the oral health and well-being of their patients. Through a partnership with the Dental Tribune Study Club, the Network provides access to some of the latest information and developments in oral health.

Since December last year, den-

tal professionals are able to access the free benefits of the Colgate Oral Health Network including educational resources such as live online webinars and on-demand seminars. It is also intended to serve as an interaction platform for dental professionals worldwide by incorporating various cultures and new perspectives into the educational mix, the company said.

More information is available at www.colgateoralhealthnetwork.com.



“Oral health is a substantial part of general health and well-being”

A welcome message by Alois Stöger, Minister of Health in Austria

■ Herewith, I would like to welcome you to the seventh conference of the European Federation of Periodontology. It is indeed a great honour and pleasure for me that this leading periodontology and dental im-

plantology congress is being held in Vienna. I would like to extend my thanks to the head of the organising committee, Dr Gernot Wimmer, and his team, who have prepared a great and diverse scientific programme.

Once again, Europerio will address important issues in dentistry. The focus of interest will be the latest trends and research findings in the fields of periodontology, implantology and dental hygiene. As far as we know today,

oral health is a substantial part of general health and maintaining one's own teeth contributes significantly to one's quality of life and well-being. One of the main causes of tooth loss in adults is periodontitis. Since non-treated pe-



• Alois Stöger (DTI/Photo Courtesy of the Federal Ministry of Health, Austria)

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riodontal disease increases the risk of systematic non-communicative diseases, such as diabetes or heart and circulatory disease, it is essential to direct efforts towards preventing and treating those conditions, as well as towards combating shared risk factors, including poor nutritional habits and smoking.

Results from oral health surveys conducted in Austria reflect good oral health in our adult population. Fortunately, tooth loss and edentulism have become rare. At the same time, the percentage of prosthetic restorations has increased, with an obvious trend from removable dentures towards high-quality tooth replacements. Owing to the use of modern technologies and advancements in dental materials, implantology has now become inseparable from modern dentistry.

One of the main challenges for health systems in the 21st century is equality of opportunity. We are aware of the fact that socially and educationally disadvantaged groups have a lower likelihood of good health. Studies conducted at national and international level have demonstrated that this is also true of oral health. Social inequalities equal inequalities in oral health. As Minister of Health in Austria, one of my primary goals is to promote fairness of opportunity in both general and oral health.

On that note, let me wish you an interesting and successful conference, as well as plenty of opportunities for exchanging information with your peers. In addition to the professional programme offered at Europerio, I hope that your stay will give you the chance to explore our city's many cultural and culinary highlights.

I wish you a pleasant stay in Vienna.

Yours faithfully,

Alois Stöger

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¹ Tonetti et al. *J. Clin. Periodontol.* 2002;29:317–325 ² Froum et al. *J. Periodontol.* 2001;72:25–34
³ McGuire et al. *J. Periodontol.* 2003;74:1110 & 1126 ⁴ Heden et al. *J. Periodontol.* 2006;77:295–301
⁵ Sculean et al. *Int. JPRD.* 2007;27:221–229 ⁶ Jepsen et al. *J. Periodontol.* 2004;75:1150–1160
⁷ Sanz et al. *J. Periodontol.* 2004;726–733

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“Our growth is definitely driven by innovation and quality”

An interview with Gilles Pierson, CEO of the Acteon Group

■ During the 2011 conference of the Association Dentaire Française (ADF) in Paris, Gilles Pierson, CEO of the Acteon Group, gave insight into his company's history, new products and future strategies.

Your business units Satelec, Pierre Rolland and Sopro were unified under the Acteon Group in 2003, followed by your Italian business unit, De Götzen, which joined the group in 2006. At IDS Cologne 2011, you introduced your new corporate identity and the new Acteon logo. What was the main reason for this rebranding?

The change in the group's name is due to the fact that at the very beginning in 1980, Satelec existed on its own. Pierre Rolland merged with Satelec in 1985 to become Satelec-Pierre Rolland. After 1995, we decided to grow the company through acquisitions, so we acquired different companies like Sopro and De Götzen.

the identity of each company in the group, while building a brand name that encompasses all of them.

With a turnover of €113 million and a growth rate of 16% in 2010, last year was a tremendous success for the Acteon Group. Over two third of sales were recorded in France. How was 2011 for you, and which markets do you consider most important for the group?

The year 2010 was another big and successful year with a 16% increase. In 2011, we expect another 9% increase in sales, which is good if you consider the economic situation. Europe will account for a stable 2% and the US for 10%. But the highest growth we are experiencing is in China, at approximately 20%. In general, Asia currently accounts for 20% of our global sales, so if we achieve a 20% increase, we will be very satisfied. Countries like Japan and India in particular are very strong markets for us, as was Thailand until November, before floods plagued the country.

2011 and the coming years will definitely be driven by Asia, and especially by China, where we have been doing business since 1987. We now have a team of 40 people there and expect an average growth of 30% over the next five years. China is definitely a booming market.

ing an alarming trend reversal in Europe. There are so many fake or copy products from China imported into Europe with a fake CE number or with a fake ISO 9000. The customs duties in the Shenzhen area do not block these fake products, so any kind of product can enter into Europe. These are healthcare devices to treat patients and they should not put patients in danger.

Do you believe that you will still be able to manufacture in France or in Europe in the future?

Acteon's policy is to manufacture and conduct research in Western Europe, and not to manufacture in China, South-East Asia, Brazil, India, or anywhere else. Our policy is to produce continuously in Western Europe. Our factories are in France, Italy and Germany. Acteon has established itself in a niche of the health-care market. This market is driven by quality and innovation. Western Europe is best known for these qualities and, consequently, you have to have your factory here to produce at such a level and to generate innovation based on the technology. This is Acteon's philosophy.

Over the past 30 years, we have invested a large amount of the company's profits in R&D. We currently have a total of 70 people in our R&D departments in the different companies, and our growth is definitely driven by innovation and quality.

You have invested in the digital dentistry market in particular...

We invest a lot in the digital dentistry market indeed. This is one of the fastest-growing markets today and we have reached a point where we are able to offer more or less the complete range of products. Only the panoramic is missing; however, within the next five to six years, the panoramic might disappear from the market and be replaced by the flat panel instead of the linear panel. We therefore prefer to concentrate on the flat panel, with a 2-D or 3-D reconstruction.

No one can deny any longer that the future of dentistry is digital. For example, at Sopro, we manufacture a camera to detect tooth decay with fluorescence technology. So imaging is one thing, but with imaging you can go to diagnosis. Imaging for a diagnosis is really the key point of imaging, and if you have a good diagnosis, you can have a good treatment.

Your new CBCT System, WhiteFox, received the red dot design award in 2011, which recognises exceptional



• Gilles Pierson, CEO of the Acteon Group.

industrial design. What is the response from the market, and how are the sales figures for the WhiteFox system?

We place a heavy emphasis on design at Acteon for three reasons. The first reason is that the dental clinics are usually well designed because the patient is awake. It is not like a hospital, where the patient is under anaesthesia and asleep and does not care about his environment. In a dental clinic, patients like to have a nice environment to lower the stress of the experience.

Another point is that the dental assistant is participating increasingly in the choice of products. The clinical team likes nice designs and colours, whereas the dentist tends to be more attracted by technical features. But the dental assistant is playing an increasingly important role in decision-making when it comes to new acquisitions.

The WhiteFox was very well received by the market. The design is nice, but the technology is really advanced. For example, WhiteFox is the only scanner of its kind to feature a Hounsfield units calibration. This calibration is used for measuring bone density in order to allow for perfect planning and, if needed, for bone grafting prior to implantations.

Since the introduction of cone-beam technology to general dental and maxillo-facial surgery, ENT surgeons have become increasingly attracted to this form of technology and are thus becoming a very important market segment for this kind of product.

The large viewing area for the ear, nose and throat is especially convenient. We have good syner-

gies with our medical division, which is also specialised in the ENT area. You see, there are many bridges between the dental and medical fields, between endoscopy in the medical and imaging in the dental field, between radiology in the dental and imaging in hospitals or ENT.

We are pleased with the cone beam, and the sales figures are within our expectations.

You are Platinum sponsor of the upcoming Europerio Congress in Vienna. What can visitors expect from Acteon there?

Basically, we are very involved in preventive and conservative dentistry. Periodontics has always played a major role in these areas and Europerio is considered to be the leading congress in this specialty worldwide. We have purposefully chosen to become Platinum sponsor of the congress because of the quality of its scientific programme and the excellent standing of the congress in the dental community.

Acteon will stage sponsored sessions on Wednesday, 6 June, from 16:00 to 17:00 (this includes a session hosted by Dr Bennani entitled “A new gingival retraction technique for implants”). On Friday, 8 June, from 12:15 to 13:45, there will be a novel procedure for evaluating plaque status and soft-tissue inflammation using an intraoral camera. These sessions will be of interest to dental hygienists, general dentists as well as periodontists. The crème de la crème of international speakers will reveal tips and tricks from their professional lives, and we invite everyone cordially to join us in Vienna. ■



It would not have been feasible to have named the group Satelec, Pierre Rolland, Sopro, De Götzen and so on. We saw the necessity for a group name while maintaining the companies' individual names. So the group is

reddot design award winner 2011

now named Acteon but the different companies that we acquired and that merged are identified as companies with their own history and their own products. This is also good for the employees, who still identify with their original companies while belonging to a large group.

So we have kept the history of each company, but we have grouped them under the umbrella of Acteon. Satelec is still known in countries like France. Pierre Rolland, which is a 60-year-old company, is still famous, so it's a little bit difficult to introduce the name of Acteon. Eight years on, awareness is growing, although the individual company names of Pierre Rolland and Satelec are still better known than the umbrella group of Acteon.

In countries where our history is shorter, like the USA, Asia or Australia, Acteon is now known as a company, and the different companies like Satelec, Pierre Rolland and Sopro as divisions. We found a way to keep

When we talk to other European companies that sell on the Chinese market, they often mention price sensitivity and the need to adapt to the local price level.

No, I don't think it's a question of price—it's a question of mentality in China. They have cheap copies of all our products there. Twenty years ago, we sued the copycats. However, we realised that this was not productive because if the company simply closes and reopens in the next garage, you are fighting a lost cause. More importantly, we realised that the Chinese copies are our best advertising because the quality is very poor and the design is just ridiculous. Dentists first buy a Chinese copy but then they experience so many problems. As soon as they have the money to buy a European product at a European price, they will buy it. The fake Rolex made in China is sold in Europe, but the real Rolex made in Switzerland is sold in China. And the proper business-orientated Chinese client with a long-term plan will never buy a fake product.

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“Good long-term treatment results depend on periodontal maintenance therapy”

An interview with Dr Oystein Fardal, Norway

■ According to Norwegian dentist Dr Oystein Fardal, quality control in periodontal therapy is significantly lacking. *Today international* had the opportunity to speak with him at Europerio 7 about the challenges of establishing a universal model and the benefit of quality control to periodontal treatment outcomes.

Today international: Dr Fardal, your presentation at this Europerio congress is titled “Quality control in periodontal therapy”. Could you explain this concept in more detail?

Dr Oystein Fardal: The aim of my presentation here at Euro-

perio 7 is to describe how quality control can be measured and applied to periodontal therapy. The main objectives are to determine the stages of periodontal therapy during which control measures should be considered and which parameters are suitable for measurement. I will also aim at identifying benefits for patient and clinician, as well as the long-term implications of quality-control measures in periodontal therapy.

From your perspective, is quality control in periodontal therapy generally lacking?

Unfortunately, little work has been done with regard to this im-

portant aspect of periodontal therapy. What has been achieved so far has been somewhat sporadic, without an overall plan of what a quality-control model should be based upon.

What are the main challenges in periodontal treatment nowadays and which aspects of therapy or the methods are most affected?

The emphasis in periodontal therapy seems to have shifted somewhat from saving teeth with doubtful and poor prognoses to replacing them with implants. However, with more implants being placed, more complications need to be dealt with. This is al-

ready a challenge for periodontists today and most likely to increase with time. For example, we still do not have a proven universal protocol for the treatment of peri-implantitis.

When it comes to traditional periodontal therapy, the main challenges are associated with the management of maintenance treatment.

You have been campaigning for the use of periodontal maintenance therapy programmes for years. How could such a programme contribute to the quality of treatment?

Periodontal maintenance programmes have been in existence for a long time and so has the knowledge of the importance of such programmes. My research merely reiterates the fact that good long-term treatment results depend on periodontal maintenance therapy.

In your studies, you have found that compliance with these programmes is generally low among patients. Why is that and what are your recommendations for improving compliance?

With few exceptions, the literature reports low rates of compliance with maintenance therapy but this is not a problem specifi-



be important when considering improvements in patient compliance.

There are quality-control systems in development around the world. Are you aware of those systems, and what are their benefits and shortcomings?

I am aware of some excellent research being carried out that can be applied to quality-control systems. The fact that this work is being carried out in different areas of the world is beneficial for agreeing on a universal model for quality control of periodontal therapy. However, I do not know enough of the details of the work to comment on any shortcomings.

How do new treatment methods or tools contribute to quality control of periodontal therapy?

It is not so much that new methods or tools contribute to quality control as the fact that

“Any model for quality control will have to be designed in such a manner that it can be applied to both new and established treatment methods or tools.”

cally relating to periodontal therapy. All treatment protocols, medical or dental, for which the patient is required to participate are confronted with similar problems.

A number of psychological theories have been suggested to explain non-compliance. It is also known that age, sex, geographic and cultural differences play a significant role. One of my papers points out that the referring dental practitioner could be a decisive factor. Thus, differences in dental practice profile and treatment philosophies are likely to

these new methods need to have quality control applied to them. Any model for quality control will have to be designed in such a manner that it can be applied to both new and established treatment methods or tools. The basic design of such a model requires the user to document outcome, deviations, financial implications and cost effectiveness of the particular treatment. For example, such a model could be applied to new regenerative procedures or materials.

Thank you very much for this interview.

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Vaccination against periodontitis—myth or reality?

By Professor Lior Shapira, Hadassah Medical Center, Hebrew University, Israel

■ Prevention of disease, in this case chronic periodontitis, is always better than cure. In many cases, vaccination has turned out to be an easy and inexpensive way to prevent the emergence of disease in individuals and the community. Developing a vaccine for periodontitis has been a hot subject for periodontal researchers. After 30 years of searching for a periodontal vaccine, where do we stand today?

Let me explain briefly how vaccination works. We expose the body to a weak or dead pathogen, or even to peptides derived from the pathogen, which activates B and T cells that are exposed to the pathogen. While B cells produce antibodies that can help to kill the pathogen, T helper cells produce specific clones, also called cytokines, that activate an immunity cascade aimed at killing the pathogen. It is basically a network of cells and molecules that protects the body from invaders.

The old dogma was that the role of vaccination is to induce a humoral immune response, meaning protection by the production of memory B cells and antibodies against the pathogen. This dogma however is too simple. Recent evidence suggests that immunization can modulate the host response and shift the response, a key element in successful protection. The nature of the cellular response and which molecules are secreted to the site by these cells are critical to disease processes, as well as protection.

What is the process of developing a vaccine? First, we have to identify the key pathogens, and then identify and isolate virulence factors from the pathogens as candidate antigens. The candidate vaccine should be tested first in pre-clinical models followed by safety and efficacy tests in humans. Two years ago, scientists at the University of Melbourne and a biopharmaceutical company announced that they had developed a vaccine to treat periodontitis (British Dental Journal, 2010, Vol. 208, Issue 5). They claimed to have identified candidate vaccine antigens for periodontitis and that the new vaccine targets *Porphyromonas gingivalis*. Is this news or just old news? Are we almost within striking distance of a vaccine?

In the last 40 years, the key pathogens for periodontitis were identified and the short list includes no more than five to seven pathogens, in which *P. gingivalis* plays an important part. Research by Hajishengallis et al. on animal models suggested that this low-abundance pathogen is needed only to initiate the process and open the door for other bacteria to induce disease (Cell Host and Microbe, 2011, Vol. 10, Issue 5). This is a very interesting and attractive hypothesis. In this case, preventing *P. gingivalis* from inducing this environmental change will influence the clinical outcome positively.

Eighteen years ago, a research group headed by Roy Page from Seattle was the leader in periodon-

tal vaccination research (Infection and Immunity, 1994, Vol. 62, Issue 3). They vaccinated primates with whole-cell *P. gingivalis*, and demonstrated partial protection against experimental periodontitis. Interestingly, they found that the levels of specific antibodies against *P. gingivalis* were high in all animals that were exposed to the bacteria, immunized and non-immunized, and antibody production was not able to explain the protection achieved. They also tested levels of specific molecules that are secreted by inflammatory cells in the gingival crevicular fluid and found that vaccination was successful in modifying the host response to the infection, thereby reducing the levels of the inflammatory mediator Prostaglandin E2 (PG-E2). There was a correlation between PG-E2 and bone loss: the lower the level of the mediator, the less bone loss observed.

This was the first proof of principle. From then on, significant efforts were made in identifying molecules that are virulence factors and may serve as good candidates for vaccine development, with most researchers concentrating on molecules derived from *P. gingivalis*. Some of its proteins were isolated and used for immunization studies. Many investigators focused on a specific group of important enzymes—cysteine proteases, which are considered to be essential for *P. gingivalis* survival and for disease pathogenesis.

Thirteen years after their pio-

neering experiment, Page's team also tested the safety and efficacy of a vaccine containing a cysteine protease of *P. gingivalis* (Oral Microbiology and Immunology, 2007, Vol. 22, Issue 3). Following their first experiment, they vaccinated primates with the cysteine protease and induced experimental periodontitis by inoculation of *P. gingivalis*. This vaccine was also found to induce partial protection against experimental disease, suggesting the possibility of developing a vaccine using a single molecule of *P. gingivalis*.

Modern molecular biology offers new approaches to making vaccines by cloning genes from bacteria, expressing the protein antigen in other bacteria in culture and isolating the pure protein in the laboratory. This makes the preparation safer and easier to prepare. Professor Mike Curtis from the Queen Mary, University of London has cloned a gene containing the code for the adhesive part of an important cysteine protease of *P. gingivalis*, *rgpA*. The vector in bacteria was expressed by our own Dr. Asaf Wilensky, who produced a recombinant peptide and used it in vaccination experiments with mice, in which periodontitis was induced by inoculation of *P. gingivalis*, and bone loss was assessed using micro-CT (Journal of Periodontology, 2005, Vol. 76, Issue 8).

A recent hypothesis is that targeting *P. gingivalis* may have a community-wide impact on the flora, and may be important for prevent-



ing chronic periodontitis. In an elegant preliminary yet unpublished experiment, Wilensky demonstrated that vaccination with the recombinant peptide was able to provide 50 per cent protection, similar to a vaccine with whole bacteria, and induce changes in the host response to the infection. This experiment proved the principle that a recombinant protein can be used as a vaccine for periodontitis.

So, how close are we to developing a periodontitis vaccine in 2012? Well, we still lack data from clinical trials in animals and there is not enough preclinical data. Therefore, we are still far from phase III experiments in humans.

Yet, there is hope. Better understanding disease pathogenesis in animal models will help us in developing the right vaccine for the right target.

Prof. Shapira will be presenting today during the EFP/AAP session, "Latest therapies and emerging technologies", 14:00–15:30, Room Strauss 2–3.

New insights into the complexity of microbiological infections

By Wim Crielaard, Academisch Centrum Tandheelkunde Amsterdam, the Netherlands

■ Modern molecular analyses and in particular next-generation sequencing (NGS) techniques have revolutionised oral microbiology. Owing to the fact that we can, relatively cheaply, analyse millions of (bacterial) DNA sequences within a few days, we now have the capability, for the first time in history, to recognise all oral bacteria, the oral microbiome, present (at different locations) in the oral cavity. The term "human microbiome" is defined as the ecological community of commensal, symbiotic and pathogenic micro-organisms that share our body space. Indeed, since the first use of NGS for oral microbial communities in 2008, there has been an avalanche of NGS studies directed towards oral infections.

Being able to analyse the oral microbiome is of particular relevance

and importance because it is well known that micro-organisms cooperate collectively in a polymicrobial ecosystem, causing chronic oral infections, such as periodontitis, gingivitis, peri-implantitis, stomatitis, caries and endodontic infections.

Studies of cultivable sub-gingival micro-organisms had already shown that the predominant bacteria in periodontally healthy sites are Gram-positive facultative rods and cocci. In periodontitis, there is a decrease in the number of these "healthy" organisms and an increase in the number of "pathogenic" Gram-negative rods and spirochetes. An ecological disturbance induces this pathogenic shift: if the healthy symbiotic balance between the host and the micro-organisms present in the sub-

gingival ecosystem is disturbed, for example, by an unhealthy diet, poor oral hygiene or smoking, periodontal disease is likely to occur.

Indeed, culturing sub-gingival micro-organisms has provided considerable knowledge on the pathogenic bacteria associated with periodontitis, but unfortunately this approach is limited by the fact that it focuses (by definition) on cultivable micro-organisms. As has been underlined frequently in the past, many oral bacteria cannot be cultivated and therefore conclusions are drawn on an incomplete picture. With this in mind, and because scientists started to realise that the polymicrobial ecosystem actively sustains oral health, even before NGS, molecular microbial analyses had been developed, which give a better, more complete overview of the oral microbial ecology in health



and during disease. Many molecular microbial analyses have been targeted at a selection of (pathogenic) micro-organisms, but only open-ended approaches, where there is no selection for specific species to be detected, can be used for oral microbiome studies.

The open-ended approach that has been most widely used for oral microbial communities and oral infections is the 16S rRNA gene clone-library approach. In this approach, bacterial 16S rRNA genes, from which the bacterial lineage can be deduced, are extracted from clinical, for example sub-gingival, samples. Using molecular biological techniques, these genes (lineage codes) are copied and stored in biological libraries (i.e. living bacterial cells). Subsequently, the DNA codes

of the 16S genes are revealed using traditional (Sanger) sequencing methods and the bacteria present in the original sample can be classified. Indeed, by using this technique, several uncultivated bacteria were found to be associated with periodontitis, but after the first NGS study in which several orders of magnitude (i.e. millions) bacterial 16S DNA codes were analysed, it became clear that so far we had only explored the tip of the iceberg.

In the past two years, several laboratories have used NGS techniques to identify the pathogenic microbiomes that cause periodontitis, peri-implantitis and other oral infections and have compared these with the oral microbiomes of healthy subjects to understand the ecological shifts that accompany the transition from a healthy state towards disease.

During the presentation at Europerio 7, the advantages and challenges of using NGS techniques (in comparison with more traditional techniques) in studying oral microbial infections, as well as recently obtained new insights into the complexity of these polymicrobial infections, will be presented.

EUROPERIO Vienna 2012—Exhibitors List

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ACTEON	37	Curaden International AG	43c								
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Managing Editor: Daniel Zimmermann

Editorial Assistant: Claudia Duschek

Product Manager: Bernhard Moldenhauer

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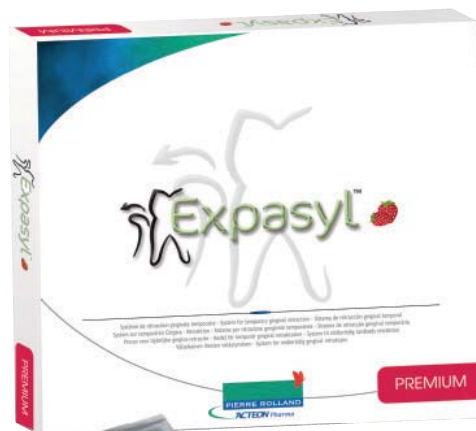


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