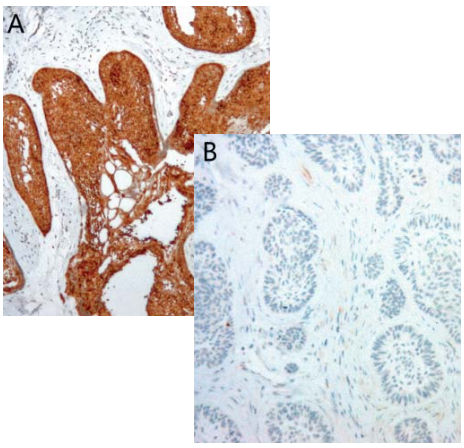
NEWS

Researchers find

Mutation in jaw tumour

A Finnish team of researchers has discovered a gene mutation in ameloblastoma, which is a tumour of the jaw. The finding could significantly improve treatment, as a targeted drug for the mutation in question already exists. Ameloblastoma is an odontogenic tumour with a high tendency to recur after treatment. It is most often found in the posterior region of the mandible.

Ameloblastomas are treated with surgery, often resulting in tissue deficiencies in the jaws and the loss of several teeth. A suitable drug therapy could



reduce the need for surgery and the recurrence of ameloblastoma; however, finding such a treatment requires a better understanding of the pathogenesis of the tumour. Researchers have been searching for the mutation that causes ameloblastoma for decades, and this mutation has now been found in a patient living in the eastern part of Finland.

The team who made the discovery includes researchers from the University of Turku and the University of Eastern Finland. According to the leaders of the team, Professor of Medical Biochemistry Klaus Elenius at the University of Turku and Professor of Oral Diagnostic Sciences Kristiina Heikinheimo at the University of Eastern Finland, the finding is a scientific breakthrough.

The significance of the finding is further emphasised by the fact that it has direct implications for treatment, as a targeted drug for the mutation in question already exists.

Annual meeting of

European and North America prosthetics

The Academy of Prosthodontics held its 2014 international congress in Europe for the first time in collaboration with the Swiss Society for Reconstructive Dentistry. About 500 participants joined the event in Bern in Switzerland, at which leading experts in prosthetics from the US met up with their European colleagues to discuss their treatment philosophies. Founded in 1918, the Academy of Prosthodontics is one the oldest specialty organisations in prosthetic dentistry. Its annual meeting usually takes place in the US or Canada. This year, however, the organisers opted for the congress centre at the Kursaal Bern, the largest conference complex and event venue in the region. The two-day scientific programme saw practice-related clinical lectures by expert panellists from both sides of the Atlantic. Twenty speakers from the US and Switzerland, as well as from Italy, Germany, Spain and the UK, elaborated on the essential principles of modern prosthetics in dentistry, including digitalisation and aesthetic aspects of conventional and implant prosthetics. The lectures were held in English. However, simultaneous interpreting was available in French and German. Alongside the scientific programme, attendees had the opportunity to visit the congress dental exhibition.

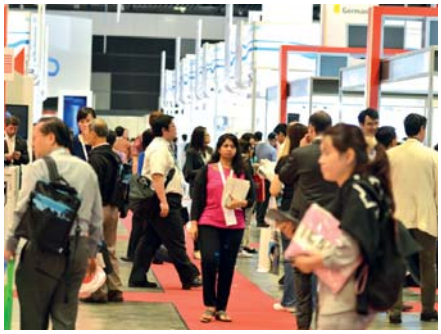
Metal 3-D printing helped

Rebuild motorbike crash survivor's face

The Belgian company LayerWise produced patient-specific titanium implants as part of a pioneering facial reconstruction. Motorcyclist Stephen Power was severely injured in an accident near Cardiff, UK. A specialist team successfully dealt with all facial injuries, with the exception of his left cheek and eye socket. The patient's cheekbone was too far out and his eye was sunk in and dropped. Due to the close proximity of critical and sensitive anatomical structures, the team applied the latest 3-D computer-aided practices by PDR and innovative 3-D printing of the titanium implant and fixation plate by LayerWise. The company manufactured the implant and fixation plate in medical-grade titanium (Ti6Al4V ELI) in accordance with the ISO 13485 standard, produced the floor plate, and polished its upper surface to minimize friction with soft tissues. The floor plate was fixated to the zygomatic bone through the plate's dedicated slip with attachment holes. After his recovery, Stephan Power experiences the results of the surgery as 'totally life changing'. Instead of using a hat and glasses to mask his injuries, he is now able to do day-to-day things, go and see people, walk in the street, and even go to any public areas.

IDEM Singapore 2014 was

A record-breaking success



This year's IDEM Singapore demonstrated why it is Asia's leading dental trade fair and scientific conference with record breaking numbers of exhibitors, conference tracks and attendees. The event saw more than 500 exhibitors from 38 countries showcasing the latest innovations in clinical dentistry, dental technology and patient care across every segment of the dental market, covering restorative and preventive treatments, surgical procedures and equipment, orthodontics, endodontics, periodontics and laboratory tools. The IDEM Singapore trade fair was the first ever to fill both floors of exhibition space covering 16,000 sqm. The trade fair and conference welcomed 7,842 participants from 61 countries over three and a half days. IDEM Singapore is increasingly seen as the gateway to Asia for dental manufacturers and distributors wishing to break into Asian markets and this was reflected in the high number of first time exhibitors; 170 or 30 per cent were new to IDEM Singapore this year.

The conference theme this year was "Dentistry—The Future Is Now" with the programme focusing on the future of dentistry, addressing the challenges and the procedural and technical advances in the various fields of dentistry. The trade fair and conference welcomed 7,842 participants from 61 countries over three and a half days. IDEM Singapore is increasingly seen as the gateway to Asia for dental manufacturers and distributors wishing to break into Asian markets. The increased representation from countries in the Asia-Pacific region such as Australia, Cambodia, Taiwan, Hong Kong, Korea, Japan, New Zealand, Myanmar and Sri Lanka, highlighted another trend: IDEM Singapore, long considered the event where East meets West, is now also increasingly seen as the gathering point for different parts of the East to meet each other. The next edition will be staged from April 8 – 10, 2016.

Researcher patented

New bacteria fighting agent

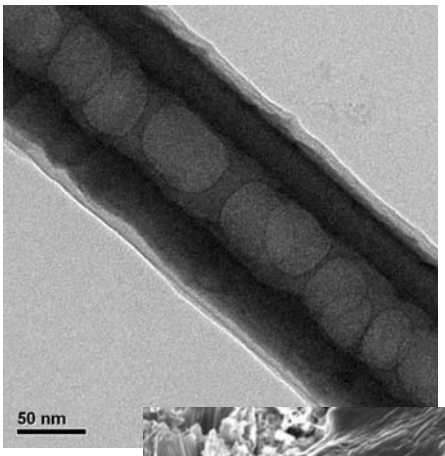
Researchers at the University of Washington's School of Dentistry have received a patent for a new way of using titanium-based materials to control bacterial infections. They believe that the substances could be used in a patient's mouth after dental procedures to reduce the risk of infection or in mouthwashes and toothpastes to limit bacterial growth prophylactically. Over several years, the researchers have studied titanates and peroxo-titanates, inorganic compounds that can inhibit bacterial growth when bound to metalions. They found these substances to be effective against endodontic, periodontic and cariogenic bacteria, indicating that these substances could be incorporated into gels or solutions that can be applied by dentists after treatments such as root canals or dental fillings. Dr Whasun Oh Chung, research associate professor at the school, explained that metals have been known to have antibacterial properties, but when used in concentrations high enough to be effective, they also carry the risk of toxic side effects. Using the new agent, however, therapeutic benefits can be achieved with less risk of toxicity.

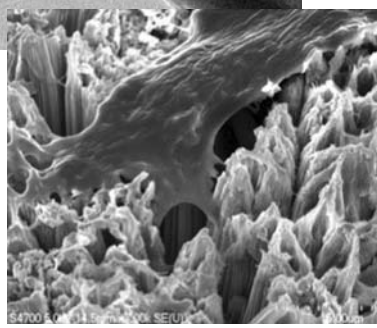
Currently, the researchers are conducting human trials. They expect to finish them in spring. If proven effective, the new agent could even be used in narrowly targeted treatments for internal organs, as well as in dental or medical materials and devices, Chung said.

Future dental implants could be

Made from nanotubes

A scientist at Michigan Technological University is in the process of using nanotechnology to create better, longer-lasting dental implants. "Dental implants can greatly improve the lives of people who need them," said Tolou Shokuhfar, an assistant professor of mechanical engineering. "But there are two main





issues that concern dentists: infection and separation from the bone." Shokuhfar says implants with a surface made from titanium dioxide nanotubes can battle infection, improve healing, and help dental implants last a lifetime. "We have done toxicity tests on the nanotubes, and not only did they not kill cells, they encouraged growth," she said. The nanotubes can also be a drug delivery system. Shokuhfar's team loaded titanium dioxide nanotubes with the anti-inflammatory drug sodium naproxen and demonstrated that it could be released after implant surgery. That assures that the medicine gets where it's needed, and it reduces the chances of unpleasant side effects that arise when a drug is injected or taken orally. To fight infection, the nanotubes can also be laced with silver nanoparticles. Shokuhfar and her team have received a provisional patent and are working with two hospitals to develop the technology and license it.