

Biologics Division



Straumann has successfully entered the market for dental tissue regeneration, putting the Company in a strong position to advance the development of pioneering biotechnology treatment concepts in dentistry.

Biomaterials – a key technology for the next decade

Straumann's implant system has long offered superior technology. To ensure this remains the case in the future, the Company has expanded its focus to include biomaterials in addition to the development of the implant system. The systematic development of our Biologics portfolio is an important complement to implant dentistry. Therefore, we are focusing on the use of biomaterials for the reconstruction of dental bone and soft tissue. These tissues play an important role in implant dentistry, as implants can only be placed if a sufficient quality and quantity of bone is available. Also, adequate gum tissue is necessary to achieve optimal esthetic results. We believe that bone substitute materials are currently being used in an average 20–25% of dental implant procedures and that in 80% of these cases bone substitutes are combined with a membrane to cover and protect the bone tissue. Demand for products that practitioners can use to build the necessary bone volume at the implant area, and products to promote the healing and regeneration of soft tissue, will continue to grow.

Successful entry into the tissue regeneration market

Many of our customers were pleased when we acquired the Swedish company Biora in 2003. This move is another important milestone in strengthening our expertise in tissue regeneration. Straumann will continue to develop Biora's EMD (Enamel Matrix Derivative or EMD protein) technology platform together with

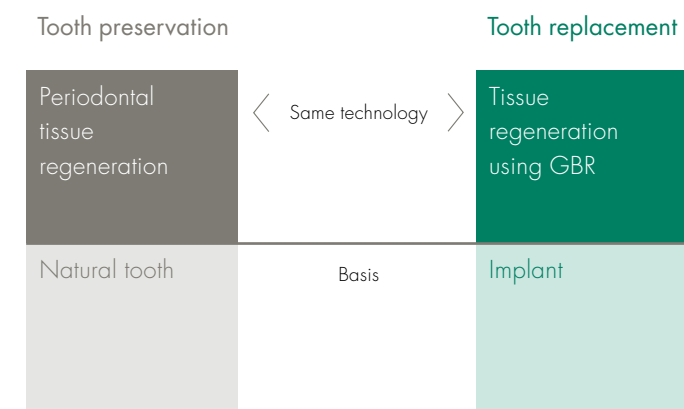
its own carrier matrix for existing and new indications. Biora's competence in the field of research and development – and in particular its expert knowledge of protein production – and the potential synergies arising from the combination with Straumann form a good basis for accelerating the development of pioneering products. Biora also brings valuable experience in registration procedures for biological substances to Straumann. Nevertheless, Straumann is far from becoming a pharmaceutical biotechnology company – it will merely develop biologically-based products for dental replacement and tooth preservation applications.

Emdogain® – an effective product for treating tissue loss due to periodontitis

One third of the world's population over the age of 55 suffer from extensive loss of tooth-supporting tissues – including the surrounding bone – due to periodontitis. Emdogain offers a good solution for regenerating lost tooth attachments. It is administered as a gel supplied in a prefilled syringe. As with all Straumann products, Emdogain offers easy handling, resulting in short treatment times that benefit both dentist and patient. The clinician applies a layer of gel to the exposed root of the tooth. Emdogain then stimulates the formation of new dental cement, periodontal root fibers, and the surrounding bone. As a result, the periodontium is reconstructed and the natural tooth preserved.

The formation of this new tissue is a gradual process with tissue growth being observed over a period of two to three years following treatment. Both experience to date and a large number of scientific studies confirm that Emdogain is an effective

Technology platform Biologics



Straumann is the first company to offer products for both tooth replacement and natural tooth preservation: implants and Emdogain. The technology platform for tissue regeneration is the same for both methods of treatment. Surgeons use Guided Bone Regeneration (GBR) in roughly 20–25% of implant treatments and soft tissue management in approximately 10% of treated cases.

“I am convinced that Straumann will be a strong partner in dental tissue regeneration in future.”

Sandro Matter



Interviewer: Expanding Straumann’s existing product range for tooth replacement with a product for preserving natural teeth would seem at first glance to be a contradiction in terms. What’s the reason for this strategy?

Sandro Matter: Straumann is the first company to offer products for both these methods of treatment. This is indeed unique. From a clinical point of view, it may be better in many cases to replace a tooth with an implant, but in others it may make sense to preserve an endangered tooth by using tissue regeneration. This decision is up to the dentist. As a manufacturer and distributor of products in this market, we want our customers to be able to offer their patients an effective treatment for every situation, which is in line with our “best care philosophy”. In my opinion, being active in both areas is a natural and desirable development for a dental implant company such as Straumann.

Interviewer: Do you see any synergies in the basic and clinical research performed in the fields of implant dentistry and periodontal tissue regeneration?

Sandro Matter: Absolutely. We are convinced that we are at a decisive stage of technical development. The combination of biomaterials and metal-based products will play an important role in the long term. In practice, the incidence of bone and soft tissue regeneration during implant insertion is very high.

Interviewer: Is the acquisition of Biora a one-off move or does Straumann aim to establish itself in other biotechnology markets as well?

Sandro Matter: From today’s perspective, the acquisition of Biora is the last acquisition with regard to the establishment of our Biologics Division. Emdogain, Biora’s flagship product, has been registered in several markets over the past years and has been successfully marketed in a large number of countries for some time. In addition to this clinically well-documented product, Biora provides valuable production and sales expertise in this area, which will certainly be a great advantage when launching future Biologics Division products.

Interviewer: How did Straumann’s existing customers react to the Biora acquisition?

Sandro Matter: Without exception, the feedback was extremely positive. Many of our customers are also Biora customers. Both companies address the same customer groups: dentists practising implant dentistry, oral surgeons, and periodontists. In other words, there is a natural link between the two specialized fields of implant dentistry and periodontology. I am confident that Straumann will be a strong partner in dental tissue regeneration in the future.

and predictable product for the treatment of moderate to severe defects. In addition, clinicians and patients report that wounds heal more rapidly, that there is less postoperative pain, and that swelling is reduced with Emdogain treatment.

Roughly five million operations per year to treat periodontitis are currently performed worldwide – the majority without additional regenerative measures. The market potential for regenerative products in periodontology is therefore substantial.

By adding Emdogain to its Biologics Division, Straumann has successfully established itself in the market for periodontal tissue regeneration. Biora’s highly qualified employees are well experienced in the sale of biotechnological products – a skill that will be highly advantageous to the future product launches by our Biologics Division. We therefore believe that Straumann is well positioned as a strong partner in the field of dental tissue regeneration.

The importance of tissue regeneration for implant surfaces

In 1998, Straumann launched the SLA surface, a further development down the line of Straumann’s innovative rough implant surfaces, which has been the gold standard for a long time. Its rough surface enhances the ingrowth of the implant to the bone, a process known as osseointegration. As a result, the implant can be loaded sooner, which means a shorter treatment time for the patient.

Today, Straumann is developing a new, chemically “active” surface whose topography is the same as the current SLA surface, but is designed to further enhance the integration of the implant into the bone. Now that the first in-vitro and in-vivo studies have proven successful, we are planning clinical studies in Europe and North America in 2004. Straumann is also developing a new technique for modifying the surface structure, to further accelerate osseointegration. Straumann’s expertise in dental tissue regeneration technology will be an important resource for developing this solution.

Forward-looking research and development projects

The forward-looking provision of medical services for the population depends on systematic, up-to-date research; this means not only developing new products, but also monitoring and optimizing those that are already on the market.

Straumann’s Biologics development portfolio includes among others two projects which are part of the Company’s comprehensive treatment concept for dental tissue regeneration. If clinical tests are successful, we intend to launch these on the market in 2004 or 2005 respectively. The first project involves a bone substitute material that can be used in combination with dental implant procedures (GBR, guided bone regeneration). It comes in granulated form and is filled into bone defects to reconstruct bone defects. Gradually, the granules are resorbed by the body and are replaced by natural bone. The features of this planned new Straumann product is a fast ingrowth and regeneration of the patients’ tissue.

Secondly, we intend to launch a new type of membrane. Membranes are used to cover bone tissue and protect the bone defects during regeneration. This is an established technique, but Straumann’s new solution is more innovative than its predecessors. As with all Straumann products, we place a high priority on the ease of use of the product, so that new treatment techniques are not restricted to specialists only.

Straumann focuses on offering new, integrated methods of treatment in its research and development projects. We are convinced that by doing so we are making an important contribution towards improving the quality of life for people with dental problems. We want to help people to be able to chew better, to laugh, and to play an active part in everyday life again.

Good esthetic result thanks to Emdogain

Indication: gingiva recession (degeneration of gum tissue)

Before treatment: the gum surrounding the patient’s upper incisor has receded by 5 mm. Less than 1 mm of vital gum (keratinized tissue) is covering the root of the tooth, and there is a danger that the tooth will be lost.

Eight months after treatment with Emdogain the root of the tooth is completely covered and the gum line has been restored to its correct level – the periodontium and thus the tooth have been saved.



before



after