Press release

CAMLOG

Osseoinduction is the engine of progress in implantology

Scientific collaboration agreement signed with Professor H-P. Jennissen of the University of Duisburg-Essen and the biotech company Morphoplant GmbH.

Remark of the webmaster: Prof. H.-P. Jennissen is member of the Scientific Board of the camlog foundation

Today the biologization of implant surfaces is one of the most forward-looking technologies for advancing implant therapy. With this in mind, CAMLOG has entered into a collaboration agreement with Professor Jennissen of the University Hospital of Essen and the biotech company Morphoplant GmbH with the goal of modifying CAMLOG implant surfaces, grafting them with bioinductive materials and thereby shortening the healing time, improving implant-adjacent bone quality and increasing implant-bone contact.

Exclusive Collaboration: The initial contacts between Prof. H-P. Jennissen, Institute for Physiological Chemistry, Department of Biochemical Endocrinology at the University Hospital of the University of Duisburg-Essen and Dr. Axel Kirsch, currently a member of the management board of the CAMLOG Group, led to a joint research and development project in 2002: "Biologization of test bodies and implants with a nano-surface and BMP-2."
This collaboration led in December 2002 to the spin-off of the company Morphoplant GmbH under General Manager Dr. Markus Laub, with headquarters in Bochum.

July 2006 saw the conclusion of an exclusive licensing agreement between Morphoplant GmbH and CAMLOG Biotechnologies AG. Morphoplant currently has 4 scientific and 2 technical employees working with Prof. Jennissen and Dr. Laub.

The technological focus of Morphoplant is on the development and manufacture of osteophilic, osteoinductive, and bioactive surfaces for dental and orthopedic implants and bone replacement materials. In building up its technology platform, Morphoplant is working in close collaboration with Prof. Jennissen and CAMLOG Biotechnologies AG in Basel.

Novel Implant Surface Technology: Starting from the sand-blasted, acid-etched Promote® implant surface (micro-macro-coarse) of CAMLOG, a novel osteoinductive surface has been developed through chemical treatment with chrome sulfuric acid, which produces an ultra-hydrophilic nanostructure with an "inverse lotus effect."

The ultra-hydrophilic nano-implant surface provides the foundation for the osteoinductive coating with BMP-2 applied and bonded there. The coating mobilizes bone precursor cells, so that new bone can be formed on and around it. An animal study has provided evidence also of a substantially shortened healing time. CAMLOG implants surface-treated with BMP-2 are therefore ideal for poorly supported bone and problem patients.

Initial Results: The first published results (Becker et al. Clin.Oral invest. 10, 167, 2006) of an earlier study show an approximately twofold increase in bone density after 4 weeks around an implant with ultra-hydrophilic surface compared with controls. The endpoint in a current preclinical animal study is how two new titanium surfaces perform in the mouth and how well and how rapidly they are colonized by bone. Following coating with BMP-2, bone density increases to four to five times that of controls.

Biogenic Binding Proteins: A further focus addresses the attachments formed by biogenic binding proteins as demonstrated by certain mussels to promote their own attachment. This technology enables the attachment of bioreactive proteins such as BMP2 or other growth factors to metallic surfaces without loss of activity.

Prospects. Remarkable progress is currently taking place in the field of dental implants, and specifically in the area of top surface and marginal surface technology, since the biocompatibility, integration capacity, and durability of an implant are closely associated with the tissue-implant interface surface. Therefore the targeted development of osteophilic (e.g. ultra-hydrophilic nanostructured surface) and osteoinductive (e.g. BMP 2-coated) surfaces is part of the current cutting edge research in the area of dental implantology. These novel surfaces are particularly sensitive in their biological behavior outside the body and require special surface protection – in addition to excellent manufacturing technology – up until the moment of implantation. Intensive basic research, which produces understanding of the prior processes at work on the implant-tissue interface surface, will make it possible to successfully develop better, faster, and more compatible implants for human use.

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